

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 07.93
 replaces : 09.04.92
 Calibrating oil : ISO 4113

Injection pump : VE4/12F1100R378-8
 Type number : 0 460 424 081

Customer-specific information
 Customer : CDC

Engine : 4 BT

Power kW: 67
 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating oil
 return temp. °C
 with thermometer : 40.0...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0,30...0,40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening Pressure bar: 250.00...253,00

Perforated plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm: 840

Start of delivery
 Prestroke mm: 0,3
 (from BDC): +0,02(0,04)

Start of delivery block
 Piston stroke mm: 1,8
 mm: +0,02(0,06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
 Setting value mm: 2,3...2,7
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
 Setting value bar: 4,1...4,7
 Shutoff electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900
 Del. quantity cm³/
 1000S.: 68,0...69,0
 Shutoff electromagnet Volt: 12
 Dispersion cm³/ : 4,0
 1000S.: (4,5)

Low-idle speed regulation

Speed 1/min: 475
 Del. quantity cm³/
 1000S.: 10,5...16,5
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/ : 5,5
 1000S.: (7,0)

Full-load speed regulation

Speed 1/min: 1175
 Del. quantity cm³/
 1000S.: 32,5...37,5
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : -
 mind 1000S.: 65,0
 Shutoff electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
 TD travel mm: 1,3...2,1
 mm: (1,0...2,4)
 electromagnet Volt: 12
 2nd speed 1/min: 900

TD travel	mm: 2,3...2,7 mm: (1,8...3,2)	Del. quantity cm ³ /: 65,5...68,5 1000S.: (64,0...70,0)
Shutoff		5th speed 1/min: 900
electromagnet Volt:	12	Shutoff
3rd speed	1/min: 1100	electromagnet Volt: 12
TD travel	mm: 3,4...4,1 mm: (3,0...4,4)	Del. quantity cm ³ /: 68,0...69,0 1000S.: (65,5...71,5)
Supply-pump pressure characteristic:		6th speed 1/min: 750
1st speed	1/min: 500	Shutoff
Supply-pump pressure	bar: 2,3...2,9	electromagnet Volt: 12
Shutoff		Del. quantity cm ³ /: 70,0...74,0 1000S.: (68,0...76,0)
electromagnet Volt:	12	7th speed 1/min: 500
2nd speed	1/min: 900	Shutoff
Supply-pump pressure	bar: 4,1...4,7	electromagnet Volt: 12
Shutoff		Del. quantity cm ³ /: 70,0...78,0 1000S.: (68,0...80,0)
electromagnet Volt:	12	Mech. shutoff:
3rd speed	1/min: 1100	Mech. Abstellung:
Supply-pump pressure	bar: 4,9...5,5	1st speed 1/min: 1100
Shutoff		Del. quantity cm ³ /: 0,0...3,0 1000S.: -
electromagnet Volt:	12	Shutoff
Overflow quantity at overflow valve:		electromagnet volt: 12
1st speed	1/min: 500	Electr. shutoff:
Shutoff		1st speed 1/min: 475
electromagnet Volt:	12	Del. quantity cm ³ /: 0,0...3,0
Overflow	: 41...83	Shutoff
quantity cm ³ /10s:	(26...98)	electromagnet volt: -
2nd speed	1/min: 1100	Idle delivery:
Shutoff		1st speed 1/min: 475
electromagnet Volt:	12	Shutoff
Overflow	: 55...138	electromagnet Volt: 12
quantity cm ³ /10s:	(40...154)	Del. quantity cm ³ /: 10,5...16,5 1000S.: (8,5...18,5)
Delivery-quant. and breakaway char.:		2nd speed 1/min: 550
1nd speed	1/min: 1230	Shutoff
Shutoff		electromagnet Volt: 12
electromagnet Volt:	12	Del. quantity cm ³ /: 0,0...3,0 1000S.: -
Del. quantity cm ³ /:	0,0...3,0	Automatic starting fuel delivery:
1000S.: -		1st speed 1/min: 130
2nd speed	1/min: 1175	Shutoff
Shutoff		electromagnet Volt: 12
electromagnet Volt:	12	Del. quantity cm ³ /: 75,0...125,0 1000S.: -
Del. quantity cm ³ /:	32,5...37,5	2nd speed 1/min: 240
1000S.: (30,0...40,0)		Shutoff
3rd speed	1/min: 1160	electromagnet Volt: 12
Shutoff		Del. quantity cm ³ /: 40,0...80,0 1000S.: -
electromagnet Volt:	12	
Del. quantity cm ³ /:	37,0...71,0	
1000S.: -		
4th speed	1/min: 1100	
Shutoff		
electromagnet Volt:	12	

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5,0...5,4
MS	mm: 1,1...1,5
SVS max.	mm: 3,2
Ya	mm: 34,8...38,8
Yb	mm: 40,7...46,3

Remarks:

: C.D.C. # 391 9846
Overflow restriction 0,55 mm - Part No.
.303

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 07.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1100R173-10
 Type number : 0 460 426 113
 Customer Part-No. :

Customer-specific information
 Customer : CASE

Engine : 6 BT-5.9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.5
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
 Setting value mm: 2.60...3.00
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
 Setting value bar: 4.90...5.50
 Shutoff electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
 Del. quantity cm³/
 1000S.: 58.50...59.50
 Shutoff electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000S.: 8.00...12.00

Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 5.0
 1000S.: (5.5)

Full-load speed regulation

Speed 1/min: 1180
 Del. quantity cm³/
 1000S.: 15.00...55.00
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 35.00...85.00
 mind 1000S.: 35.00
 Shutoff electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
 TD travel mm: 4.80...5.60
 mm: (4.50...5.90)

Shutoff electromagnet Volt: 12

3rd speed 1/min: 750

TD travel mm: 2.60...3.00
 mm: (2.10...3.50)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 500
 TD travel mm: 0.60...1.40
 mm: (0.30...1.70)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump pressure bar: 3.80...4.40
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 750
 Supply-pump pressure bar: 4.90...5.50
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Supply-pump pressure bar: 6.40...7.00
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1210
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 3rd speed 1/min: 1180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...55.00
 1000s.: (15.00...55.00)
 5th speed 1/min: 1160
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 41.00...47.00
 1000s.: (38.00...50.00)
 9th speed 1/min: 1100

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 56.00...59.00
 1000s.: (54.50...60.50)
 10th speed 1/min: 900
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 57.00...60.00
 1000s.: (55.50...61.50)
 12th speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 58.50...59.50
 1000s.: (56.00...62.00)

Mech. shutoff:
Mech. Abstellung:
 1st speed 1/min: 1100
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12

Electr. shutoff:
 1st speed 1/min: 400
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:
 1st speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.00...12.00
 1000s.: (5.00...15.00)
 Dispersion cm³/: 5.5
 1000s.: (7.0)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000s.: (0.00...4.00)

Automatic starting fuel delivery:
 1st speed 1/min: 220
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.00...95.00
 1000s.: (45.00...95.00)

 2nd speed 1/min: 420
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...70.00
 1000s.: (40.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 35.00...85.00
1000s.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.2...5.6
MS mm: 1.0...1.4
SVS max. mm: 4.5
Ya mm: 34.8...38.8
Yb mm: 40.2...45.8

Remarks:

: C.D.C. # 391 2113
Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 30.10.91
 replaces : 20.10.89
 Calibrating oil : ISO-4113

Injection pump : VE6/12F1150R373-1
 Type number : 0 460 426 144
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTA-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.85
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value mm: 1.60...2.00
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
 Charge press hPa: 1000
 Setting value bar: 3.30...3.90
 Shutoff electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000s.: 82.50...83.50
 Shutoff electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000s.: 67.50...68.50
 Shutoff electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000s.: 9.00...13.00
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 5.5
 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1185
 Charge press hPa: 1000
 Del. quantity cm³/
 1000s.: 64.00...70.00
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 70.00...130.00
 mind 1000s.: 70.00
 Shutoff electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1150
Charge press hPa: 1000
TD travel mm: 2.80...3.60
mm: (2.50...3.90)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.60...3.20
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.30...3.90
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1150
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 77.50...78.50
1000s.: (73.50...82.50)
2nd speed 1/min: 1285
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
3rd speed 1/min: 1215
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...55.00
1000s.: (15.00...55.00)
5th speed 1/min: 1185
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 64.00...70.00
1000s.: (61.00...73.00)
9th speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.00...79.00
1000s.: (74.50...80.50)
10th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 81.00...84.00
1000s.: (79.50...85.50)
12th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 82.50...83.50
1000s.: (80.00...86.00)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 67.50...68.50
1000s.: (63.50...72.50)
Mech. shutoff:
Mech. Abstellung:
1st speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 9.00...13.00
1000S.: (6.00...16.00)
Dispersion cm³: 5.5
1000S.: (7.0)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 280
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 75.00...125.00
1000S.: (75.00...125.00)

2nd speed 1/min: 440
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 50.00...80.00
1000S.: (50.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 70.00...130.00
1000S.: (70.00...130.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.2...5.6
MS mm: 1.2...1.6
SVS max. mm: 2.7

Ya mm: 34.8...38.8
Yb mm: 42.7...48.3

Remarks:
: C.D.C. # 391 6894
:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 07.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE6/12F1150R373-1
 Type number : 0 460 426 144
 Customer Part-No. : 391 9004

Customer-specific information
 Customer : CDC

Engine : 6 BTA-5.9 IND.

Power KW: 131
 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.85
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value mm: 1.60...2.00
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
 Charge press hPa: 1000
 Setting value bar: 3.30...3.90
 Shutoff electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 82.50...83.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/ : 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 67.50...68.50
 Shutoff electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 9.00...13.00
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/ : 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1200
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 64.00...70.00
 Shutoff electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 70.00...130.00
 mind 1000S.: 70.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1150
Charge press hPa: 1000
TD travel mm: 2.80...3.60
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.60...3.20

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.30...3.90

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1150
Charge press. hPa: 1000

Supply-pump
pressure bar: 4.90...5.50
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 77.50...78.50
1000s.: (73.50...82.50)

2nd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

3rd speed 1/min: 1230
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...55.00
1000s.: (15.00...55.00)

5th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 64.00...70.00
1000s.: (61.00...73.00)

9th speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 76.00...79.00
1000s.: (74.50...80.50)

10th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 81.00...84.00
1000s.: (79.50...85.50)

12th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 82.50...83.50
1000s.: (80.00...86.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 67.50...68.50
1000s.: (63.50...72.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1150

Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 9.00...13.00
1000S.: (6.00...16.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 280
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 75.00...125.00
1000S.: (75.00...125.00)

2nd speed 1/min: 440
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation K mm: -

KF mm: 5.2...5.6
MS mm: 1.2...1.6
SVS max. mm: 2.7
Ya mm: 34.8...38.8
Yb mm: 42.7...48.3

Remarks:

: Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Heavy-duty fuel-injection pump for DI-engines: only test using timing-device-travel measuring device with metal jacket

Ya = Distance between VE flange and speed-control lever in idle position

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 07.93
 replaces : 03.05.90
 Calibrating oil : ISO-4113

Injection pump : VE6/12F1050R373-2
 Type number : 0 460 426 145
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6BTA-5.9 I

Power KW: 124
 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.85
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value mm: 1.50...1.90
 Shutoff electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
 Charge press hPa: 1000
 Setting value bar: 2.90...3.50
 Shutoff electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 94.50...95.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 50.50...51.50
 Shutoff electromagnet Volt: 24
 Dispersion cm³/: 9.0
 1000S.: (9.0)

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 8.00...12.00
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1100
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 73.00...79.00
 Shutoff electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm³/: 60.00...110.00
mind 1000s.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 2.50...3.30
mm: (2.20...3.60)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.50...1.90
mm: (1.00...2.40)
Shutoff
electromagnet Volt: 24
4th speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 1.80...2.40
Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.90...3.50
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.30...4.90
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1050
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 79.50...80.50
1000s.: (75.50...84.50)
2nd speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
3rd speed 1/min: 1130
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...55.00
1000s.: (15.00...55.00)
5th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 73.00...79.00
1000s.: (70.00...82.00)
9th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 83.50...86.50
1000s.: (82.00...88.00)
10th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 87.50...90.50
1000s.: (86.00...92.00)
12th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 94.50...95.50
1000s.: (92.00...98.00)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 50.50...51.50
1000s.: (46.50...55.50)
Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1050
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...12.00
1000s.: (5.00...15.00)
Dispersion cm³/: 5.5
1000s.: (7.0)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 45.00...95.00
1000s.: (45.00...95.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 25.00...55.00
1000s.: (25.00...55.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation K mm: -

KF mm: 5.2...5.6
MS mm: 1.4...1.8
SVS max. mm: 0.8
Ya mm: 34.8...38.8
Yb mm: 44.5...50.1

Remarks:

: C.D.C. # 391 7000

* Correction at adjusting nut

Overflow restriction 0.55 mm - Part No.
.303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 07.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VEG/12F1400R377
 Type number : 0 460 426 148
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTA- 5.9 IND.
 Power KW: 141
 Speed 1/min: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.36
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 2.4
 mm: +0.02(0.06)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value mm: 1.50...1.90
 Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 80.50...81.50
 Shutoff electromagnet Volt: 12
 Dispersion cm³/ : 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 72.00...73.00
 Shutoff electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 8.00...14.00
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/ : 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1510
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 56.00...62.00
 Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 100.00...150.00
 mind 1000S.: 100.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 2.70...3.50
mm: (2.40...3.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.50...1.90
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump

pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump

pressure bar: 7.70...8.30

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 97.00...141.00

quantity cm³/10s: (97.00...141.00)

2nd speed 1/min: 1400
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12

Overflow : 115.00...184.00
quantity cm³/10s: (115.00...184.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 79.50...80.50
1000s.: (76.00...84.00)

2nd speed 1/min: 1650
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

4th speed 1/min: 1550
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...55.00
1000s.: (15.00...55.00)

5th speed 1/min: 1510
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.00...62.00
1000s.: (53.00...65.00)

9th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.50...78.50
1000s.: (74.00...80.00)

10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...83.00
1000s.: (78.00...85.00)

12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quynity cm³/: 80.50...81.50
1000s.: (77.00...84.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 73.00...74.00
1000s.: (69.50...77.50)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1400

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm²/: 8.00...14.00
1000S.: (6.00...16.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.00...140.00
1000S.: (90.00...140.00)

2nd speed 1/min: 370
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...100.00
1000S.: (60.00...100.00)

4th speed 1/min: 101
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.00...150.00
1000S.: (100.00...150.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: -
MS mm: 1.0...1.4

SVS max. mm: 3.9
Ya mm: 34.8...38.8
Yb mm: 44.8...50.2

Remarks: : C.D.C. # 391 6908
:

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

* Correction at adjusting nut

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 07.93
 replaces : 08.07.92
 Calibrating oil : ISO-4113

 Injection pump : VE6/12F1100R371-1
 Type number : 0 460 426 158
 Customer Part-No. :

Customer-specific information
 Customer : CASE

 Engine : 6 T 590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

 Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 Electronically : 42...50

 Inlet press., bar : 0.30...0.40

 Calibrating nozzle-holder
 assembly : 1 688 901 027

 Opening
 Pressure bar: 250.00...253.00

 Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

 Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.2
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.5
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
 Setting value mm: 3.10...3.50
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
 Setting value bar: 4.90...5.50
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
 Del. quantity cm³/
 1000S.: 59.00...60.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 9.00...13.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1160
 Del. quantity cm³/
 1000S.: 37.00...43.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 65.00...105.00
 mind 1000S.: 65.00
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
 TD travel mm: 5.40...6.20
 mm: (5.10...6.50)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 750

TD travel	mm: 3.10...3.50 mm: (2.60...4.00)	Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 57.00...60.00 1000s.: (55.50...61.50)
Shutoff		12th speed 1/min: 750
electromagnet Volt: 12		Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 59.00...60.00 1000s.: (56.50...62.50)
4th speed 1/min: 500		20th speed 1/min: 500
TD travel	mm: 1.00...1.80 mm: (0.70...2.10)	Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 42.00...50.00 1000s.: (40.00...52.00)
Shutoff		Mech. shutoff:
electromagnet Volt: 12		Electr. shutoff:
Supply-pump pressure characteristic:		1st speed 1/min: 425 Del. quantity cm ³ : 0.00...3.00 1000s.: (0.00...3.00)
1st speed 1/min: 500		Idle delivery:
Supply-pump pressure	bar: 3.80...4.40	1st speed 1/min: 450
Shutoff		Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 9.00...13.00 1000s.: (6.00...16.00)
electromagnet Volt: 12		Dispersion cm ³ : 5.5 1000s.: (7.0)
2nd speed 1/min: 750		2nd speed 1/min: 550
Supply-pump pressure	bar: 4.90...5.50	Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 0.00...4.00 1000s.: (0.00...4.00)
Shutoff		Automatic starting fuel delivery:
electromagnet Volt: 12		1st speed 1/min: 180
3rd speed 1/min: 1100		Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 65.00...125.00 1000s.: (65.00...125.00)
Supply-pump pressure	bar: 6.40...7.00	2nd speed 1/min: 350
Shutoff		Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 17.50...57.50 1000s.: (17.50...57.50)
electromagnet Volt: 12		4th speed 1/min: 100
Overflow : 41.70...83.40		Shutoff electromagnet Volt: 12 Del. quantity cm ³ : 65.00...105.00 1000s.: (65.00...105.00)
quantity cm ³ /10s: (41.70...83.40)		Shutoff electromagnet:
2nd speed 1/min: 1100		
Shutoff		
electromagnet Volt: 12		
Overflow : 55.60...139.00		
quantity cm ³ /10s: (55.60...139.00)		
Delivery-quant. and breakaway char.:		
2nd speed 1/min: 1230		
Shutoff		
electromagnet Volt: 12		
Del. quantity cm ³ : 0.00...3.00		
1000s.: (0.00...3.00)		
3rd speed 1/min: 1180		
Shutoff		
electromagnet Volt: 12		
Del. quantity cm ³ : 13.00...33.00		
1000s.: (13.00...33.00)		
5th speed 1/min: 1160		
Shutoff		
electromagnet Volt: 12		
Del. quantity cm ³ : 37.00...43.00		
1000s.: (34.00...46.00)		
9th speed 1/min: 1100		

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 4.1
XK	mm: 18.8...20.8
XL	mm: 10.2...13.6
Ya	mm: 34.8...38.8
Yb	mm: 39.7...45.1

Remarks:

: C.D.C. # 391 8207

:

Overflow restriction 0.55 mm - Part No.
.303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 07.93
 replaces : 06.05.92
 Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R371-2
 Type number : 0 460 426 201
 Customer Part-No. :

Customer-specific information
 Customer : CUM

Engine : 6 T 590

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.2
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.5
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 700
 Setting value mm: 1.30...1.70
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 700
 Setting value bar: 4.70...5.30
 Shutoff
 electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 700
 Del. quantity cm³/
 1000S.: 73.00...74.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 8.00...12.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1160
 Del. quantity cm³/
 1000S.: 45.00...51.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 80.00...120.00
 min
 1000S.: 80.00
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
 TD travel mm: 3.90...4.70
 mm: (3.60...5.00)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 700

TD travel mm: 1.30...1.70
mm: (0.80...2.20)

Shutoff

electromagnet Volt: 12
4th speed 1/min: 500
TD travel mm: 0.00...0.70
mm: (0.00...1.00)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump pressure bar: 3.80...4.40

Shutoff

electromagnet Volt: 12

2nd speed 1/min: 700

Supply-pump pressure bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1100

Supply-pump pressure bar: 6.50...7.10

Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff

electromagnet Volt: 12

Overflow quantity cm³/10s: 41.70...83.40
cm³/10s: (26.70...98.40)

2nd speed 1/min: 1100

Shutoff

electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1230

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

3rd speed 1/min: 1190

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 10.00...30.00
1000s.: (10.00...30.00)

Shutoff

electromagnet Volt: 12

5th speed 1/min: 1160

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 45.00...51.00
1000s.: (42.00...54.00)

9th speed 1/min: 1100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 65.50...68.50
1000s.: (64.00...70.00)

12th speed 1/min: 700

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 73.00...74.00
1000s.: (70.50...76.50)

20th speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 68.00...76.00
1000s.: (66.00...78.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450

Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 8.00...12.00
1000s.: (5.00...15.00)

Dispersion cm³/: 5.5
1000s.: (7.0)

2nd speed 1/min: 550

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 80.00...140.00
1000s.: (80.00...140.00)

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 40.00...80.00
1000s.: (40.00...80.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 80.00...120.00
1000s.: (80.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 3.3
Ya	mm: 34.8...38.8
Yb	mm: 39.5...44.9

Remarks:

Ya = Distance between VE flange and
: speed-control lever in idle

position

Yb = Distance between VE flange and
speed-control lever in rated speed

position

Measurement point = edge of control
lever on distributor-head end

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
 Edition : 07.93
 replaces : -
 Calibrating oil : ISO-4113

 Injection pump : VE6/12F1100R307-6
 Type number : 0 460 426 223
 Customer Part-No. :

Customer-specific information
 Customer : MAN

Engine : D 0826 TE 520

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 223

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 110

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.2
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
 Charge press. hPa: 1000
 Setting value mm: 1.90...2.30

Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
 Charge press. hPa: 1000
 Setting value bar: 6.60...7.20
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 93.50...94.50
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 67.00...68.00

Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
 Del. quantity cm³/
 1000S.: 6.50...13.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.0
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1180
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 67.00...73.00

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 900
 Charge press. hPa: 1000
 Inj.-qty. cm³/
 difference 1000S.: 13.00...21.00
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)

1.Speed 1/min: 900
 Charge press hPa: 1000
 TD-travel difference mm: 0.10...0.30
 Shutoff electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 2.60...3.40
 mm: (2.30...3.70)
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 900
 Charge press hPa: 1000
 TD travel mm: 1.90...2.30
 mm: (1.40...2.80)
 Shutoff electromagnet Volt: 12
 4th speed 1/min: 750
 Charge press hPa: 1000
 TD travel mm: 0.70...1.50
 mm: (0.40...1.80)
 Shutoff electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1100
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.40...8.00
 Shutoff electromagnet Volt: 12
 2nd speed 1/min: 900
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.60...7.20
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 750
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.00...6.60
 Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: -
 Shutoff electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting point hPa: 450
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 87.00...88.00
 1000s.: (85.00...90.00)
 2nd speed 1/min: 1300
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 3rd speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 0.00...40.00
 1000s.: (0.00...40.00)
 4th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 46.00...66.00
 1000s.: (46.00...66.00)
 5th speed 1/min: 1180
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 67.00...73.00
 1000s.: (65.50...74.50)
 9th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 89.50...94.50
 1000s.: (88.00...96.00)
 12th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 93.50...94.50
 1000s.: (91.50...96.50)
 18th speed 1/min: 600
 Charge press. hPa: -
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 67.00...68.00
 1000s.: (65.00...70.00)

20th speed 1/min: 600

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 95.50...104.50
1000S.: (94.00...106.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 6.50...13.50
1000S.: (4.50...15.50)
Dispersion cm³: 6.0
1000S.: (6.5)
2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 900'
Charge press. hPa: 1000
Inj.-qty. cm³: 14.00...16.00
difference 1000S.: (14.00...16.00)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900#
Charge press. hPa: 1000
Inj.-qty. cm³: 13.00...21.00
difference 1000S.: (13.00...21.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 900*
Charge press. hPa: 1000
Inj.-qty. cm³: 2.00...8.00 z
difference 1000S.: (2.00...8.00) z

Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 900#
Charge press. hPa: 1000
TD-travel : 0.10...0.30
difference mm: (0.10...0.30)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900*
Charge press. hPa: 1000
TD-travel : 0.10...2.10 z
difference mm: (0.10...2.10) z
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 900'
Charge press. hPa: 1000
Supply pump-
pressure : 0.10...0.30
difference bar: (0.10...0.30)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 85.00...145.00
1000S.: (85.00...145.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 80.00...110.00
1000S.: (80.00...110.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 74.00...76.00
1000S.: (70.00...80.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: KOT
MS mm: 0.8...1.2

SVS max. mm: 1.0
Ya mm: 37.4...40.4
Yb mm: 41.9...47.1

Remarks:

Operate control lever after each 3-7132
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

Overflow restriction 0.55 mm - Part No.
.303

Z = Absolute delivery

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 07.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R459
 Type number : 0 460 484 049
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : F8Q - 732 A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 4.10...4.50
 AFB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 4.50...5.10
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Full-Load del. with charge press.:
 Dispersion cm³/ : 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 1250
 Del. quantity cm³/
 1000S.: 31.50...32.50
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ : 2.5
 1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 1.00...5.00
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
 Del. quantity cm³/
 1000S.: 25.50...31.50
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 40.00...70.00
 mind 1000S.: 40.00
 KSB/AFB
 Valve Volt: -
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250

Inj.-qty. cm³/
 difference 1000S.: -9.00...-13.00#
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 TD-travel
 difference mm: -0.3...-0.50#
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

 Inspection-pump test specifications
 Test specifications in parentheses

 Timing-device characteristic:

 1st speed 1/min: 2000
 TD travel mm: 7.60...8.40
 mm: (7.30...8.70)
 KSB/AFB
 valve Volt: -
 Shutoff : -
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 TD travel mm: 4.10...4.50
 mm: (3.60...5.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 750
 TD travel mm: 1.70...2.50
 mm: (1.40...2.80)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 8th speed 1/min: 500B
 TD travel mm: 1.90...4.30
 mm: (1.90...4.30)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 9th speed 1/min: 310A
 TD travel mm: 0.60...3.00
 mm: (0.60...3.00)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

 Supply-pump pressure characteristic:

 1st speed 1/min: 750

Supply-pump pressure bar: 3.10...3.70
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Supply-pump pressure bar: 4.50...5.10
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Supply-pump pressure bar: 6.50...7.10
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

 Overflow quantity at overflow valve:

 1st speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

 Delivery-quant. and breakaway char.:

 2nd speed 1/min: 2950
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 0.00...5.00
 1000S.: (0.00...5.00)
 3rd speed 1/min: 2650
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 10.50...18.50
 1000S.: (9.50...19.50)
 5th speed 1/min: 2450
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Del. quantity cm ³ /:	25.50...31.50		electromagnet Volt: 12
	1000S.: (24.50...32.50)		Del. quantity cm ³ /: 7.50...11.50
9th speed	1/min: 2250		1000S.: (5.50...13.50)
KSB/AFB			
valve	Volt: -		High Idle:
Shutoff			
electromagnet Volt: 12			
Del. quantity cm ³ /:	33.00...35.00		1st speed 1/min: 500
	1000S.: (31.70...36.30)		KSB/AFB
10th speed	1/min: 2000		valve Volt: -
KSB/AFB			Shutoff
valve	Volt: -		electromagnet Volt: 12
Shutoff			Del. quantity cm ³ /: 7.00...11.00
electromagnet Volt: 12			1000S.: (5.00...13.00)
Del. quantity cm ³ /:	32.50...34.50		
	1000S.: (31.20...35.80)		Residual:
11th speed	1/min: 1625		1.Rotacao 1/min: 500
KSB/AFB			KSB/AFB
valve	Volt: -		valve Volt: -
Shutoff			Shutoff
electromagnet Volt: 12			electromagnet Volt: 12
Del. quantity cm ³ /:	30.10...33.10		Del. quantity cm ³ /: 1.00...5.00
	1000S.: (29.30...33.90)		1000S.: (1.00...5.00)
12th speed	1/min: 1250		
KSB/AFB			Load-dependent start of delivery:
valve	Volt: -		Inj.-qty.dif.measurement:
Shutoff			
electromagnet Volt: 12			1st speed 1/min: 1250
Del. quantity cm ³ /:	31.50...32.50		Inj.-qty. cm ³ / : -7.7...-9.70'
	1000S.: (29.70...34.70)		difference 1000S.: (-7.70...-9.70)
20th speed	1/min: 750		KSB/AFB
KSB/AFB			valve Volt: -
valve	Volt: -		Shutoff
Shutoff			electromagnet Volt: 12
electromagnet Volt: 12			3rd speed 1/min: 1250
Del. quantity cm ³ /:	30.20...33.20		Inj.-qty. cm ³ / : -9.0...-13.0#
	1000S.: (29.40...34.00)		difference 1000S.: (-9.0...-13.0#)
Mech. shutoff:			KSB/AFB
Electr. shutoff:			valve Volt: -
			Shutoff
1st speed	1/min: 410		electromagnet Volt: 12
Del. quantity cm ³ /:	0.00...3.00		5th speed 1/min: 1250
	1000S.: (0.00...3.00)		Inj.-qty. cm ³ / : 2.00...8.00 +
Shutoff			difference 1000S.: (2.00...8.00)
electromagnet volt: -			KSB/AFB
KSB/AFB			valve Volt: -
valve	Volt: -		Shutoff
Damper set qty.:			electromagnet Volt: 12
LFG-setting:			
solidale con carcassa:			TD-travel dif.measurement:
Idle delivery:			correttore anticipo iniezione (SV):
1st speed	1/min: 410		1st speed 1/min: 1250
KSB/AFB			TD-travel : -0.3...-0.50#
valve	Volt: -		difference mm: (-0.30...-0.50)
Shutoff			KSB/AFB
			valve Volt: -
			Shutoff
			electromagnet Volt: 12
			3rd speed 1/min: 1250

TD-travel : -0.2...-0.60+
difference mm: (-0.10...-0.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Supply pump-
pressure : -0.1...-0.30'
difference bar: (-0.10...-0.30)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

2nd speed 1/min: 310
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.3...3.5
KF	mm: 5.2...5.6
MS	mm: 1.3...1.7
SVS max.	mm: 1.8
Ya	mm: 27.0...31.0
Yb	mm: 60.2...69.8

Remarks:
Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

A = KSB adjustment point
B = KSB curve point

* Unscrew KSB ball valve 2 mm

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
 Edition : 07.93
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2500R305-2
 Type number : 0 460 620 009
 Customer Part-No. : 897 078 6390

Customer-specific information
 Customer : ISUZU

Engine : 4EC1-T

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 700
 Setting value mm: 3.20...3.60
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 700
 Setting value bar: 4.00...4.60

Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 700
 Del. quantity cm³/
 1000S.: 40.20...41.20

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ : 2.5
 1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 425
 Del. quantity cm³/
 1000S.: 8.70...12.70

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/ : 2.5
 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2750
 Charge press hPa: 700
 Del. quantity cm³/
 1000S.: 15.40...21.40

Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 44.00...76.00
 mind 1000S.: 44.00

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: 700
 Inj.-qty. cm³/
 difference 1000S.: 6.00...14.00

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)

1.Speed 1/min: 1250
 Charge press hPa: 700
 TD-travel
 difference mm: 0.90...1.10
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2250
Charge press hPa: 700
TD travel mm: 6.60...7.40
mm: (6.30...7.70)
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 700
TD travel mm: 3.20...3.60
mm: (2.70...4.10)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
Charge press hPa: 700
TD travel mm: 1.40...2.20
mm: (1.10...2.50)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 2000
Charge press. hPa: 700
TD travel mm: 5.70...6.50
mm: (5.40...6.80)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2250
Charge press. hPa: 700
Supply-pump pressure bar: 6.10...6.70
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 700
Supply-pump pressure bar: 4.00...4.60
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press. hPa: 700
Supply-pump pressure bar: 2.90...3.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 75.06...119.54
quantity cm³/10s: (75.06...119.54)
2nd speed 1/min: 2500
Charge press. hPa: 700

Shutoff

electromagnet Volt: 12
Overflow : 116.76...161.24
quantity cm³/10s: (116.76...161.24)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1000
Charge-air pressure-setting point hPa: 340★
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.50...38.50
1000S.: (35.50...40.50)
3rd speed 1/min: 2750
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2750
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.40...21.40
1000S.: (14.40...22.40)
8th speed 1/min: 2600
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.40...36.40
1000S.: (28.40...36.40)
9th speed 1/min: 2500
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.40...39.40
1000S.: (35.60...40.20)
10th speed 1/min: 2300
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.30...41.30
1000S.: (37.60...42.00)
11th speed 1/min: 2000
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.00...41.00
1000S.: (37.50...41.50)
12th speed 1/min: 1500
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quynqty cm³/: 40.20...41.20
1000S.: (38.40...43.00)
13th speed 1/min: 1500
Charge press. hPa: -

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.50...31.50
 1000S.: (27.00...32.00)
 15th speed 1/min: 1300
 Charge press. hPa: 700
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.70...43.70
 1000S.: (40.20...44.20)
 20th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.60...34.60
 1000S.: (29.60...35.60)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.70...12.70
 1000S.: (6.70...14.70)
 Dispersion cm³/: 2.5
 1000S.: (3.0)
 2nd speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: 700
 Inj.-qty. cm³/ : 6.00...14.00
 difference 1000S.: (6.00...14.00)
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: 700
 TD-travel : 0.90...1.10
 difference mm: (0.90...1.10)
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

2nd speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 42.50...57.50
 1000S.: (42.50...57.50)
 4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 44.00...76.00
 1000S.: (44.00...76.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Operate control lever after each
 manifold-pressure compensator pressure
 change. : VL = 40.0°...50.0°

* Correction at adjusting nut

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 23.09.93
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 400 845 043

 Injection pump
 Pump designation : PES5A95D410LS2543
 EP type number : 0 410 895 978
 Governor
 Governor design. : RQV250...1100AB1038D
 L
 Governer no. : 0 420 214 237

 Customer-spec. information
 Customer : MAN

 Engine : D 2565 M/MF

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 000

 Inlet press., bar : 1.00

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 003

 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

 Prestroke mm : 1.50...1.60
 : (1.45...1.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed	rpm	: 1100
Rack travel in mm	: 11.00...11.10	
Del.quantity cm ³ /	: 11.0...11.2	
100 s:	(10.8...11.4)	
Spread	cm ³	: 0.3
100 s:	(0.6)	

2nd speed	rpm	: 250.0
Rack travel in mm	: 6.4...6.6	
Del.quantity cm ³ /	: 1.4...1.9	
100 s:	(-)	
Spread	cm ³	: 0.3
100 s:	(0.5)	

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed	rpm	: 1150
Rack travel in mm	: 14.40...14.60	

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	Speed	rpm	: 1100
	Del.quantity	: 110.5...112.5)	
	1000	: (108.5...114.5)	
	Spread	cm ³	: 3.00
	1000	: (6.00)	

RATED SPEED

1st version	Control lever	position degrees: 38...46	
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Setting point:
 Speed rpm : 1150
 Rack travel in mm : 16.0

Testing:

1st rack travel in:	10.00	
Speed	rpm	: 1140...1150
2nd rack travel in:	4.00	
Speed	rpm	: 1175...1205
4th rack travel in:	1300	
Speed	rpm	: 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 315...375
Speed rpm : 450
Maximum rack trave: 1.00

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.00...11.10
2nd speed rpm : 800
Rack travel in m: 11.30...11.50
3rd speed rpm : 500
Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 106.5...110.5
1000 s: (104.5...112.5)
Speed rpm : 500
Del.quantity cm³/ : 0.0...111.5
1000 s: (0.0...113.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...160.0
1000 s: (-)
Rack travel in mm : 16.00...16.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a69
 Edition : 16.07.93
 Replaces : 09.89
 Test oil : ISO-4113

Combination no. : 0 400 866 146

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100A0C2190
 -36R
 Governor no. : 0 420 233 243

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 138.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del.quantity cm³/

100 s: (10.5...11.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 1.4...1.8

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 107.5...109.5

1000 : (105.5...111.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1225...1235
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 125.5...129.5
1000 s: (123.5...131.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3915952

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.07.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 172

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250A0C2190
 -55R
 Governor no. : 0 420 233 286

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 131.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 68E 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 1.2...1.6

100 s: (1.0...1.9)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 9.80
Speed rpm : 1325...1335
2nd rack travel in: 4.00
Speed rpm : 1400...1410
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1325...1335

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 12.5...16.5
1000 s: (10.0...19.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3920811

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 196

Injection pump
 Pump designation : PES6A1000320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV375...1100AOC2190
 -71R
 Governor no. : 0 420 233 310

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 134.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm³/

100 s: (10.4...11.0)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/

100 s: (1.8...2.7)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity rpm : 106.5...108.5

1000 : (104.5...110.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 9.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1230...1240
3rd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.90...6.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 119.5...123.5
1000 s: (117.5...125.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921101

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 400 866 208

Injection pump
 Pump designation : PES6A1000320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -80R
 Governor no. : 0 420 233 319

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/

100 s: (12.2...12.8)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 80)

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 124.5...126.5

1000 : (122.5...128.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921140

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 16.07.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 400 876 412

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV450...1100AOC2252
 -3L
 Governor no. : 0 420 232 592

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TDW 30

1st version kW : 120.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1.00
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.20...5.40

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.90...11.00
2nd speed rpm : 500
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 136.5...140.5
1000 s: (134.5...142.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE54248
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL
 Edition : 06.08.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 761

Injection pump
 Pump designation : PE6P110A320RS3108W
 EP type number : 0 411 816 729
 Governor
 Governor design. : RQV250...1100PA649
 Governor no. : 0 421 815 346

Customer-spec. information
 Customer : VOLVO

Engine : THD100EE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 17.1...17.3

100 s: (16.9...17.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30

2nd speed rpm : 500
 travel mm : 4.10...4.90

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 950
 travel mm : 6.30...6.70

5th speed rpm : 1100
 travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 171.0...173.0
 1000 : (167.0...177.0)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 11.80
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1255...1285
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 6.70
Speed rpm : 250
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 275
Rack travel in m: 9.60...9.80
3rd pressure hPa : 760
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 105.5...108.5
1000 s: (103.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 30.0...34.0
1000 s: (27.5...36.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 25.08.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 035 030
 Injection pump
 Pump designation : PESSP120A720/3LS528
 EP type number : 0 412 025 022
 Governor
 Governor design. : RG325/1000PA813-22
 Governor no. : 0 421 801 632
 Customer-spec. information
 Customer : MAN
 Engine : D2865 LUH 02
 1st version kW : 198.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 13.00...14.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 21.9...22.1

100 s: (21.6...22.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.9

Del.quantity cm³/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 700

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 219.0...221.0

1000 : (216.0...224.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 700

Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.85

Speed rpm : 1045...1061
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.7

Testing:

Speed rpm : 200
Minimum rack trave: 6.50
Speed rpm : 325
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.75...11.95
2nd speed rpm : 550
Rack travel in m: 11.75...11.955

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.75...11.85

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 190
Rack travel in m: 9.30...9.40
3rd pressure hPa : 500
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm3/ : 219.0...225.0
1000 s: (216.0...228.0)
Aneroid pressure h: 1000

Speed rpm : 550
Del.quantity cm3/ : 208.0...216.0
1000 s: (205.0...219.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 118.0...120.0
1000 s: (115.0...123.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.85
Speed rpm : 1045...1061

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.30...4.70
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks: : MAN-NR. 3-726Q/2

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 16.08.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 046 846

Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -7K
 Governer no. : 0 421 815 331

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 130.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 240...260

Test nozzle holder
 assembly : 1 683 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.1...5.3

Del.quantity cm³/ : 1.4...1.8

100 s: (1.2...2.1)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...2.00

2nd speed rpm : 500

travel mm : 3.80...4.20

3rd speed rpm : 800

travel mm : 5.80...6.20

4th speed rpm : 1300

travel mm : 8.90...9.10

5th speed rpm : 1500

travel mm : 10.40...10.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200
 Del.quantity : 100.0...102.0
 1000 : (98.0...104.0)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
 Control lever
 position degrees: 116...124

Testing:
 1st rack travel in: 10.70
 Speed rpm : 1360...1390
 2nd rack travel in: 4.00
 Speed rpm : 1500...1510
 4th rack travel in: 1650
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 71...79

Testing:
 Speed rpm : 275
 Minimum rack trave: 6.20
 Speed rpm : 350
 Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
 Speed rpm : 350...520

TORQUE CONTROL
 Dimension a mm : ?
 Torque control curve - 1st version
 1st speed rpm : 900
 Rack travel in m: 11.00...11.10
 2nd speed rpm : 1300
 Rack travel in m: 11.70...11.90
 3rd speed rpm : 700
 Rack travel in m: 10.30...10.70

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 1300
 Pressure hPa : 1200
 Rack travel mm : 11.70...11.90

Measurement
 Speed 1/min : 1300

1st pressure hPa : -

Rack travel in m: 9.30...9.70
 2nd pressure hPa : 270
 Rack travel in m: 10.10...10.20
 3rd pressure hPa : 630
 Rack travel in m: 10.90...11.30

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 1300
 Del.quantity cm³/ : 122.0...126.0
 1000 s: (120.0...128.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 900
 Del.quantity cm³/ : 75.5...79.5
 1000 s: (73.5...81.5)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 10.70
 Speed rpm : 1360...1390

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 120.0...160.0
 1000 s: (115.0...165.0)
 Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 5.10...5.30
 Del.quantity cm³/ : 14.5...18.5
 1000 s: (12.0...21.0)
 Spread cm³ : 4.00
 1000 s: (6.50)

Remarks: : NAVISTAR #1819923C91

Bow dimension:
 Sliding-sleeve position = 37.0 mm
 Delivery-valve spring pre-tension =
 6.30...6.40 mm.
 Permissible alteration from 6.00...6.70
 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 d8
 Edition : 27.10.93
 Replaces : 24.08.89
 Test oil : ISO-4113

 Combination no. : 0 402 076 032

 Injection pump
 Pump designation : PES6P110A720RS296
 EP type number : 0 412 016 037
 Governor
 Governor design. : RSV400...1050PO/426D
 R
 Governor no. : 0 421 835 082

 Customer-spec. information
 Customer : JOHN DEERE

 Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 457 413 010

 Inlet press., bar : 1.5

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 9 681 230 705

 Outside diameter x Wall thickness x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12,20

Del.quantity cm³/ : 17,2...17,4

100 s: (-)

Spread cm³ : 0,4

100 s: (-)

2nd speed rpm : 400

Rack travel in mm : 6,80

Del.quantity cm³/ : 1,9...2,5

100 s: (-)

Spread cm³ : 0,4

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 172,0...174,0

1000 : (-)

Spread cm³ : 4,0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11,20

Speed rpm : 1095...1105

2nd rack travel in: 5,90

Speed rpm : 1135...1165

LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,30

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,70...6,90
Rack travel in mm : 2,00
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 630
Rack travel in m: 12,60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 273,2
Rack travel mm : 9,65...9,75

Measurement
Speed 1/min : 500

1st pressure hPa : 526,5
Rack travel in m: 11,30...1,90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 177,0...180,0
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)
Speed rpm : 550
Del.quantity cm³/ : 84,0...92,0
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11,20
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version
Speed rpm : 1150
Rack travel in mm : 5,90
Del.quantity cm³/ : 47,0...57,0
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6,80
Del.quantity cm³/ : 19,0...25,0
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 16.08.93
 Replaces : 01.93
 Test oil : ISO-4113

 Combination no. : 0 402 646 600

 Injection pump
 Pump designation : PE6P120A720RS7022
 EP type number : 0 412 626 873
 Governor
 Governor design. : RQV200...1000PA539
 -14
 Governer no. : 0 421 814 011

 Customer-spec. information
 Customer : SCANIA

 Engine : DS11 76

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 2.50

 Test nozzle holder assembly : 1 688 901 104

 Opening pressure, bar : 250...253

 Orifice plate diameter mm : 0,7

 Test lines : 1 680 750 008

 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) **Injection pump setting values**
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.45...4.55
 : (4.40...4.60)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.30 (0.75)

 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 10.90...11.00

 Del.quantity cm³/ : 16.8...17.0
 100 s: (16.5...17.3)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.2)

Spread cm³ : 0.4
 100 s: (0.8)

(B) **Setting of injection pump with governor**

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 225
travel mm		: 1.20...1.60
2nd speed	rpm	: 350
travel mm		: 2.40...3.00
3rd speed	rpm	: 650
travel mm		: 4.50...5.10
4th speed	rpm	: 1045
travel mm		: 8.40...8.60
5th speed	rpm	: 1150
travel mm		: 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 700
Aneroid pressure h:		1500
Del.quantity		: 168.0...170.0
1000		: (165.0...173.0)

Spread cm³ : 8.00
 1000 : (12.00)

Del.quantity cm³/ : 142.0...146.0
 1000 s: (140.0...148.0)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 9.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1115...1145
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...71

Testing:
Speed rpm : 100
Minimum rack trave: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 390...450

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 10.90...11.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 390
Rack travel in m: 10.60...10.70
3rd pressure hPa : 340
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1000
Del.quantity cm³/ : 166.0...174.0
 1000 s: (164.0...176.0)

Aneroid pressure h: -
Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 16.08.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 603
 Injection pump
 Pump designation : PE6P120A720RS7022
 EP type number : 0 412 626 873
 Governor
 Governor design. : RQV200...1000PA539
 -15
 Governor no. : 0 421 814 013
 Customer-spec. information
 Customer : SCANIA
 Engine : DS11 75

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 2.50
 Test nozzle holder assembly : 1 688 901 104
 Opening pressure, bar : 250...253
 Orifice plate diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.45...4.55
 : (4.40...4.60)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 20.8...21.0
 100 s: (20.5...21.3)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.2)

Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 225
	travel mm	: 1.20...1.60
2nd speed	rpm	: 350
	travel mm	: 2.40...3.00
3rd speed	rpm	: 650
	travel mm	: 4.50...5.10
4th speed	rpm	: 1045
	travel mm	: 8.40...8.60
5th speed	rpm	: 1150
	travel mm	: 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 700
Aneroid pressure h:	1500	
Del.quantity		: 208.0...210.0
	1000	: (205.0...213.0)

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...71

Testing:
Speed rpm : 100
Minimum rack trave: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 590
Rack travel in m: 11.60...11.70
3rd pressure hPa : 390
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1000
Del.quantity cm³/ : 194.0...202.0
 1000 s: (192.0...204.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 142.0...146.0
 1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
 1000 s: (136.0...184.0)
Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 16.08.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 606

Injection pump
 Pump designation : PE6P120A720RS71880
 EP type number : 0 412 626 846
 Governor
 Governor design. : RQV200...950PA725-10
 Governor no. : 0 421 814 002

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 32

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.50

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.45...4.55
 : (4.40...4.60)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.5...1.9

100 s: (1.1...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1045

travel mm : 8.40...8.60

5th speed rpm : 1125

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 11.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 125
Minimum rack trave: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.50...12.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 198.0...206.0
 1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 151.0...155.0
 1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...185.0
 1000 s: (141.0...189.0)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.1993
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 783

Injection pump
 Pump designation : PE6P120A320LS7858
 EP type number : 0 412 626 875
 Governor
 Governor design. : RQV300...1050PA1065
 -1
 Governor no. : 0 421 814 068

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 180.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm³/

100 s: (16.7...17.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.93...1.33

2nd speed rpm : 370

travel mm : 1.75...2.25

3rd speed rpm : 420

travel mm : 2.18...2.68

4th speed rpm : 750

travel mm : 4.62...5.12

5th speed rpm : 1107

travel mm : 9.65...9.95

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 8.80...12.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Aneroid pressure h: 700
Del.quantity : 170.0...172.0
1000 : (167.0...175.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 98...106

Testing:

1st rack travel in: 10.15
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 200
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 350...450

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 400
Pressure hPa : 200
Rack travel mm : 10.25...10.35

Measurement
Speed 1/min : 400

1st pressure hPa : 300
Rack travel in m: 10.75...10.95
2nd pressure hPa : -
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700

Speed rpm : 550
Del.quantity cm³/ : 160.0...164.0
1000 s: (157.0...167.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 200
Speed rpm : 400
Del.quantity cm³/ : 117.5...120.5
1000 s: (114.5...123.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.15
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (121.0...149.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.1993
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 786
 Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQV300...1050PA1065
 Governer no. : 0 421 814 053

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA
 1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.95...13.05

Del.quantity cm³/

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.93...1.33

2nd speed rpm : 370

travel mm : 1.75...2.25

3rd speed rpm : 420

travel mm : 2.24...2.74

4th speed rpm : 750

travel mm : 4.62...5.12

5th speed rpm : 1108

travel mm : 9.71...9.91

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 10.40...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 101...109

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 12.95...13.05
2nd speed rpm : 1050
Rack travel in m: 12.60...12.80
3rd speed rpm : 850
Rack travel in m: 12.90...13.10

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 700
Pressure hPa : 1000
Rack travel mm : 12.95...13.05

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 11.70...11.80
2nd pressure hPa : 300
Rack travel in m: 10.60...10.80
3rd pressure hPa : -

Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ s: 216.0...220.0
1000 s: (213.0...223.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ s: 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 270.0...290.0
1000 s: (266.0...294.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.1993
 Replaces : 1.93
 Test oil : ISO-4113

Combination no. : 0 402 646 787

Injection pump
 Pump designation : PE6P120A320LS7858
 EP type number : 0 412 626 875
 Governor
 Governor design. : RQ300/1050PA1031-12
 Governor no. : 0 421 801 681

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 180.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del.quantity : 170.0...172.0

1000 : (167.0...175.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.15

Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel. in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1050
Pressure hPa : 700
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 400

1st pressure hPa : 200
Rack travel in m: 10.25...10.35
2nd pressure hPa : 300
Rack travel in m: 10.75...10.95
3rd pressure hPa : -
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 550
Del.quantity cm3/ : 160.0...164.0
1000 s: (157.0...167.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 200
Speed rpm : 400
Del.quantity cm3/ : 117.5...120.5
1000 s: (114.5...123.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.15
Speed rpm : 1090...1106

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.93
 Replaces : 1.93
 Test oil : ISO-4113

Combination no. : 0 402 646 788

Injection pump
 Pump designation : PE6P120A320LS7858
 EP type number : 0 412 626 875
 Governor
 Governor design. : RQ300/1050PA1031-11
 Governor no. : 0 421 801 680

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 18.9...19.1

100 s: (18.6...19.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del.quantity : 189.0...191.0

1000 : (186.0...194.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.75

Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:
Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 800
Rack travel mm : 11.70...11.80

Measurement
Speed 1/min : 400

1st pressure hPa : 350
Rack travel in m: 10.90...11.00
2nd pressure hPa : 200
Rack travel in m: 10.10...10.30
3rd pressure hPa : -
Rack travel in m: 9.60...9.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 550
Del.quantity cm3/ : 182.0...186.0
1000 s: (179.0...189.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 350
Speed rpm : 400
Del.quantity cm3/ : 148.5...151.5
1000 s: (145.5...154.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 126.0...128.0
1000 s: (123.0...131.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.75
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.93
 Replaces : 1.93
 Test oil : ISO-4113

 Combination no. : 0 402 646 789

 Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQ300/1050PA1031-10
 Governor no. : 0 421 801 679

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM401 LA

 1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ :

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 5.4...6.0

Del.quantity cm³/ :

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.35

Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 800
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 400

1st pressure hPa : 350
Rack travel in m: 11.05...11.15
2nd pressure hPa : 200
Rack travel in m: 10.20...10.40
3rd pressure hPa : -
Rack travel in m: 9.70...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 550
Del.quantity cm³/ : 195.0...199.0
1000 s: (192.0...202.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 350
Speed rpm : 400
Del.quantity cm³/ : 148.5...151.5
1000 s: (145.5...154.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 126.0...128.0
1000 s: (123.0...131.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.35
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...290.0
1000 s: (266.0...294.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.93
 Replaces : 12.92
 Test oil : ISO-4113

Combination no. : 0 402 646 793

Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQ300/1050PA1030-8
 Governor no. : 0 421 801 673

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 5.4...6.0

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.35

Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 800
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 400

1st pressure hPa : 350
Rack travel in m: 11.05...11.15
2nd pressure hPa : 200
Rack travel in m: 10.20...10.40
3rd pressure hPa : -
Rack travel in m: 9.70...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 550
Del.quantity cm3/ : 195.0...199.0
1000 s: (192.0...202.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 350
Speed rpm : 400
Del.quantity cm3/ : 148.5...151.5
1000 s: (145.5...154.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 126.0...128.0
1000 s: (123.0...131.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.35
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 40.0...70.0
1000 s: (36.0...74.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.1993
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 794

Injection pump
 Pump designation : PE6P120A320LS7858
 EP type number : 0 412 626 875
 Governor
 Governor design. : RQV300...1050PA1033
 -9
 Governor no. : 0 421 814 028

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm³/

100 s: (18.6...19.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00

2nd speed rpm : 575
 travel mm : 4.30...4.80

3rd speed rpm : 625
 travel mm : 4.80...5.30

4th speed rpm : 830
 travel mm : 5.90...6.40

5th speed rpm : 1109
 travel mm : 8.20...8.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1160

Rack travel in mm : 9.40...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Aneroid pressure h: 800
Del.quantity : 189.0...191.0
1000 : (186.0...194.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 10.75
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 77...85

Testing:
Speed rpm : 200
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 300...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 800
Rack travel mm : 11.70...11.80

Measurement
Speed 1/min : 400

1st pressure hPa : 350
Rack travel in m: 10.90...11.00
2nd pressure hPa : 200
Rack travel in m: 10.10...10.30
3rd pressure hPa : -
Rack travel in m: 9.60...9.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 550
Del.quantity cm³/ : 182.0...186.0
1000 s: (179.0...189.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 350
Speed rpm : 400
Del.quantity cm³/ : 148.5...151.5
1000 s: (145.5...154.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 126.0...128.0
1000 s: (123.0...131.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.75
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.1993
 Replaces : 11.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 795
 Injection pump
 Pump designation : PE6P120A320LS7858
 EP type number : 0 412 626 875
 Governor
 Governor design. : RQV300...1050PA1033
 -8
 Governor no. : 0 421 814 027
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM401 LA
 1st version kW : 180.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm³/

100 s: (16.7...17.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 0.52...0.92
2nd speed	rpm	: 575
travel mm		: 4.27...4.77
3rd speed	rpm	: 625
travel mm		: 4.72...5.22
4th speed	rpm	: 840
travel mm		: 5.94...6.44
5th speed	rpm	: 1109
travel mm		: 8.27...8.57

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 9.80...10.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700
Del.quantity : 170.0...172.0
1000 : (167.0...175.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 10.15
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 79...87

Testing:
Speed rpm : 200
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 300...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 400

1st pressure hPa : 300
Rack travel in m: 10.75...10.95
2nd pressure hPa : 200
Rack travel in m: 10.25...10.35
3rd pressure hPa : -
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 550
Del.quantity cm³/ : 160.0...164.0
1000 s: (157.0...167.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 200
Speed rpm : 400
Del.quantity cm³/ : 117.5...120.5
1000 s: (114.5...123.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.15
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (121.0...149.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 3.8.1993
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 796

Injection pump
 Pump designation : PE6P120A320LS7858
 EP type number : 0 412 626 875
 Governor
 Governor design. : RQ300/1050PA1030-5
 Governor no. : 0 421 801 665

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 18.9...19.1

100 s: (18.6...19.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 5.1...5.3

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del.quantity : 189.0...191.0

1000 : (186.0...194.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.70

Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.60...9.90

Measurement

Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 0.40...0.50
2nd pressure hPa : 350
Rack travel in m: 1.10...1.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 550
Del.quantity cm³/ : 182.0...186.0
1000 s: (179.0...189.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 126.0...128.0
1000 s: (123.0...131.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 45.0...65.0
1000 s: (41.0...69.0)
Rack travel in mm : 9.60...10.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.1993
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 797

Injection pump
 Pump designation : PE6P120A320LS7858
 EP type number : 0 412 626 875
 Governor
 Governor design. : RQ300/1050PA1030-4
 Governor no. : 0 421 801 664

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 180.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 5- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del.quantity : 170.0...172.0

1000 : (167.0...175.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.15

Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:
Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm: 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 400

1st pressure hPa : 200
Rack travel in m: 10.25...10.35
2nd pressure hPa : 300
Rack travel in m: 10.75...10.95
3rd pressure hPa : -
Rack travel in m: 9.90...10.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 550
Del.quantity cm3/ : 160.0...164.0
1000 s: (157.0...167.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 200
Speed rpm : 400
Del.quantity cm3/ : 117.5...120.5
1000 s: (114.5...123.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.15
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 40.0...70.0
1000 s: (36.0...74.0)
Rack travel in mm : 9.90...10.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 799

Injection pump
 Pump designation : PE6P120A320LS7852
 EP type number : 0 412 626 871
 Governor
 Governor design. : RQ300/950PA1031-5
 Governer no. : 0 421 801 657

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.05

Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.10...13.20
2nd pressure hPa : 250
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 950
Del.quantity cm³/ : 228.0...232.0
1000 s: (225.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.05
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 50.0...80.0
1000 s: (46.0...84.0)
Rack travel in mm : 10.10...10.50

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.93
 Replaces : 8.92
 Test oil : ISO-4113

Combination no. : 0 402 646 917X

Injection pump
 Pump designation : PE6P120A320LS7834-10
 EP type number : 0 412 626 853
 Governor
 Governor design. : RQ300/950PA971
 Governor no. : 0 421 801 543

Cust. part no. : 0180740402

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 230.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.25...15.35

Del.quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.3...6.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 240.0...242.0

1000 : (237.0...245.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
1st rack travel in: 14.00
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL
Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 14.90...15.10
2nd speed rpm : 800
Rack travel in m: 15.20...15.40
3rd speed rpm : 550
Rack travel in m: 15.25...15.35

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 1200
Rack travel mm : 15.25...15.35

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.85...12.95
2nd pressure hPa : 250
Rack travel in m: 10.80...11.00
3rd pressure hPa : -
Rack travel in m: 10.10...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm3/ : 235.5...239.5
1000 s: (232.5...242.5)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 40.0...70.0
1000 s: (36.0...76.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 921X

Injection pump
 Pump designation : PE6P120A320LS7837-10
 EP type number : 0 412 626 855
 Governor
 Governor design. : RQ300/1050PA972-3
 Governer no. : 0 421 801 565

Cust. part no. : 0200741202

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...6.2
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del.quantity : 244.0...246.0

1000 : (241.0...249.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
 Speed rpm : 1090...1106
 2nd rack travel in: 4.00
 Speed rpm : 1185...1215
 4th rack travel in: 13.00
 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 5.9

Testing:

Speed rpm : 200
 Minimum rack trave: 7.70
 Speed rpm : 300
 Rack travel in mm : 6.80...6.00
 Rack travel in mm : 2.00
 Speed rpm : 380...420

Aneroid/Altitude Compensator Test**1st version**

Setting
 Speed rpm : 600
 Pressure hPa : 1200
 Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 400

1st pressure hPa : 550
 Rack travel in m: 13.40...13.50
 2nd pressure hPa : 150
 Rack travel in m: 9.60...9.80
 3rd pressure hPa : -
 Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS**1st version**

Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm3/ : 234.0...238.0
 1000 s: (231.0...241.0)
 Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm3/ : 203.0...206.0
 1000 s: (200.0...209.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 132.0...134.0
 1000 s: (129.0...137.0)

Spread cm3 : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.90
 Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 60.0...90.0
 1000 s: (56.0...94.0)
 Rack travel in mm : 8.90...9.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 18.10.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 924X

Injection pump

Pump designation : PE6P120A320LS7837-10
 EP type number : 0 412 626 855
 Governor
 Governor design. : RQ300/950PA971-3
 Governer no. : 0 421 801 557

Cust. part no. : 0200743202

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0

Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del.quantity : 244.0...246.0

1000 : (241.0...249.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.05
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1080...1110
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.40...13.50
2nd pressure hPa : 150
Rack travel in m: 9.60...9.80
3rd pressure hPa : -
Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.05
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 65.0...95.0
1000 s: (61.0...99.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.10.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 925X

Injection pump
 Pump designation : PE6P120A320LS7837-10
 EP type number : 0 412 626 855
 Governor
 Governor design. : RQV300...950PA797-20
 Governor no. : 0 421 813 893

Cust. part no. : 0200743302

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.00...15.10

Del.quantity cm³/

100 s: (24.1...24.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...6.2
 Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.05...1.45
2nd speed	rpm	: 567
	travel mm	: 4.40...4.90
3rd speed	rpm	: 780
	travel mm	: 6.10...6.60
4th speed	rpm	: 1009
	travel mm	: 8.40...8.70
5th speed	rpm	: 1190
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 1200
Del.quantity : 244.0...246.0
1000 : (241.0...249.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 120...128

Testing:

1st rack travel in: 14.05
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 5.80...6.00

CONSTANT REGULATION
Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.40...13.50
2nd pressure hPa : 150
Rack travel in m: 9.60...9.80
3rd pressure hPa : -
Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 550
Speed rpm : 400

Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.05
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.10.93
 Replaces : 8.92
 Test oil : ISO-4113

Combination no. : 0 402 646 926X

Injection pump
 Pump designation : PE6P120A320LS7834-10
 EP type number : 0 412 626 853
 Governor
 Governor design. : RQV300...950PA797-19
 Governor no. : 0 421 813 901

Cust. part no. : 0180740502

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.25...15.35

Del.quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.3...6.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.05...1.45
2nd speed	rpm	: 617
	travel mm	: 5.00...5.50
3rd speed	rpm	: 780
	travel mm	: 6.10...6.60
4th speed	rpm	: 1009
	travel mm	: 8.40...8.70
5th speed	rpm	: 1092
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h: 1200
Del.quantity : 240.0...242.0
1000 : (237.0...245.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 14.00
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.50...6.70

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 14.90...15.10
2nd speed rpm : 800
Rack travel in m: 15.20...15.40
3rd speed rpm : 550
Rack travel in m: 15.25...15.35

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 1200
Rack travel mm : 15.25...15.35

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.85...12.95
2nd pressure hPa : 250
Rack travel in m: 10.80...11.00
3rd pressure hPa : -
Rack travel in m: 10.10...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm³/ : 235.5...239.5
1000 s: (232.5...242.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...230.0
1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.10.93
 Replaces : 8.92
 Test oil : ISO-4113

Combination no. : 0 402 646 929X

Injection pump
 Pump designation : PE6P120A320LS7834-10
 EP type number : 0 412 626 853

Governor
 Governor design. : RQV300...1050PA797
 -25

Governer no. : 0 421 813 924

Cust. part no. : 0200744102

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.25...15.35

Del.quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.3...6.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.05...1.45
2nd speed	rpm	: 608
	travel mm	: 4.80...5.30
3rd speed	rpm	: 820
	travel mm	: 5.90...6.40
4th speed	rpm	: 1108
	travel mm	: 8.40...8.70
5th speed	rpm	: 1183
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1130
 Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 240.0...242.0
 1000 : (237.0...245.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 120...128

Testing:

1st rack travel in: 14.00
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1170...1200
 4th rack travel in: 1300
 Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
 position degrees: 87...92

Testing:

Speed rpm : 200
 Minimum rack trave: 8.70
 Speed rpm : 300
 Rack travel in mm : 6.50...6.70

TORQUE CONTROL

Dimension a mm : 0.30
 Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 14.90...15.10
 2nd speed rpm : 800
 Rack travel in m: 15.20...15.40
 3rd speed rpm : 550
 Rack travel in m: 15.25...15.35

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 550
 Pressure hPa : 1200
 Rack travel mm : 15.25...15.35

Measurement

Speed 1/min : 400
 1st pressure hPa : 550
 Rack travel in m: 12.85...12.95
 2nd pressure hPa : 250
 Rack travel in m: 10.80...11.00
 3rd pressure hPa : -

Rack travel in m: 10.10...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm³/ : 233.5...237.5
 1000 s: (232.5...242.5)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm³/ : 188.5...191.5
 1000 s: (185.5...194.5)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 134.0...136.0
 1000 s: (131.0...139.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 14.00
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 200.0...230.0
 1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.10.93
 Replaces : 8.92
 Test oil : ISO-4113

 Combination no. : 0 402 646 930X

 Injection pump
 Pump designation : PE6P120A320LS7834-10
 EP type number : 0 412 626 853
 Governor
 Governor design. : RQ300/1050PA972-7
 Governor no. : 0 421 801 583

 Cust. part no. : 0200744002

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM401 LA

 1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 1 688 901 105

 Opening pressure, bar : 207...210

 Orifice plate diameter mm : 0,8

 Test lines : 1 680 750 075

 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

 Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing

Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

 Rack travel in mm : 15.25...15.35

 Del.quantity cm³/ : 24.0...24.2
 100 s: (23.7...24.5)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.3...6.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 240.0...242.0
 1000 : (237.0...245.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
1st rack travel in: 14.00
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.60

Testing:
Speed rpm : 200
Minimum rack trave: 8.70
Speed rpm : 300
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL
Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.90...15.10
2nd speed rpm : 800
Rack travel in m: 15.20...15.40
3rd speed rpm : 550
Rack travel in m: 15.25...15.35

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 1200
Rack travel mm : 15.25...15.35

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.85...12.95
2nd pressure hPa : 250
Rack travel in m: 10.80...11.00
3rd pressure hPa : -
Rack travel in m: 10.10...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 233.5...237.5
1000 s: (232.5...242.5)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpa : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 40.0...70.0
1000 s: (36.0...74.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 22.10.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 931X

Injection pump
 Pump designation : PE6P120A320LS7837-10
 EP type number : 0 412 626 855

Governor
 Governor design. : RQV300...1050PA797
 -24
 Governer no. : 0 421 813 911

Cust. part no. : 0200748302

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.05...1.45

2nd speed rpm : 608
 travel mm : 4.80...5.30

3rd speed rpm : 820
 travel mm : 5.90...6.40

4th speed rpm : 1108
 travel mm : 8.40...8.70

5th speed rpm : 1280
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600 \
 Aneroid pressure h: 1200
 Del.quantity : 244.0...246.0
 1000 : (241.0...249.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 118...126

Testing:

1st rack travel in: 13.90
 Speed rpm : 1090...1106
 2nd rack travel in: 4.00
 Speed rpm : 1165...1195
 4th rack travel in: 1300
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 81...89

Testing:

Speed rpm : 200
 Minimum rack trave: 7.70
 Speed rpm : 300
 Rack travel in mm : 5.80...6.00

CONSTANT REGULATION

Speed rpm : 400...450

TORQUE CONTROL

Dimension a mm : 0.85
 Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 14.80...15.00
 2nd speed rpm : 600
 Rack travel in m: 14.00...14.10

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 1200
 Rack travel mm : 14.00...14.10

Measurement
 Speed 1/min : 400

1st pressure hPa : 550
 Rack travel in m: 13.40...13.50
 2nd pressure hPa : 150
 Rack travel in m: 9.60...9.80

3rd pressure hPa : -
 Rack travel in m: 8.90...9.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm³/ : 234.0...238.0
 1000 s: (231.0...241.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm³/ : 203.0...206.0
 1000 s: (200.0...209.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 132.0...134.0
 1000 s: (129.0...137.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.90
 Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 200.0...230.0
 1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 16.08.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 937

Injection pump
 Pump designation : PE6P120A720RS71880
 EP type number : 0 412 626 846
 Governor
 Governor design. : RQV200...950PA725-7
 Governer no. : 0 421 813 803

Customer-spec. information
 Customer : SCANIA

Engine : DSC11 21

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.50

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.80

Del.quantity cm³/

100 s: (21.6...22.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.2

Del.quantity cm³/

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1045

travel mm : 8.40...8.60

5th speed rpm : 1125

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del.quantity : 219.0...221.0

1000 : (216.0...224.0)

Spread cm³ : 8.00
 1000 : (12.00)

Del.quantity cm³/ : 151.0...155.0
 1000 s: (149.0...157.0)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 11.70
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 58...66

Testing:
Speed rpm : 100
Minimum rack trave: 6.20
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 350...410

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 202.0...210.0
 1000 s: (200.0...212.0)
Aneroid pressure h: -
Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...180.0
 1000 s: (146.0...184.0)
Rack travel in mm : 10.30...10.70

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 942X

Injection pump
 Pump designation : PE6P120A320LS7837-10
 EP type number : 0 412 626 855
 Governor
 Governor design. : RQ300/105CPA993
 Governor no. : 0 421 801 581

Cust. part no. : 0200747102

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.00...15.10

Del.quantity cm³/

100 s: (24.1...24.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del.quantity : 244.0...246.0

1000 : (241.0...249.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
 Speed rpm : 1090...1106
 2nd rack travel in: 4.09
 Speed rpm : 1170...1200
 4th rack travel in: 1300
 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/cut bumper spring
 Speed rpm : 300
 Rack travel in mm : 5.90

Testing:

Speed rpm : 200
 Minimum rack trave: 8.10
 Speed rpm : 300
 Rack travel in mm : 5.80...6.00
 Rack travel in mm : 2.00
 Speed rpm : 380...420

Aneroid/Altitude Compensator Test**1st version**

Setting
 Speed rpm : 600
 Pressure hPa : 1200
 Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 400

1st pressure hPa : 550
 Rack travel in m: 13.40...13.50
 2nd pressure hPa : 150
 Rack travel in m: 9.60...9.80
 3rd pressure hPa : -
 Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS**1st version**

Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm3/ : 234.0...238.0
 1000 s: (231.0...241.0)
 Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm3/ : 203.0...206.0
 1000 s: (200.0...209.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 132.0...134.0
 1000 s: (129.0...137.0)

Spread cm3 : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.90
 Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 646 950X

Injection pump
 Pump designation : PE6P120A320LS7837-10
 EP type number : 0 412 626 855
 Governor
 Governor design. : RQ300/950PA993-2
 Governor no. : 0 421 801 590

Cust. part no. : 0210747902

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 24.4...24.6

100 s: (24.1...24.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...6.2
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 1200

Del.quantity : 244.0...246.0
 1000 : (241.0...249.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.05
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.90

Testing:

Speed rpm : 200
Minimum rack travel: 8.30
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.40...13.50
2nd pressure hPa : 150
Rack travel in m: 9.60...9.80
3rd pressure hPa : -
Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.05
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 402 646 976

Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQ300/1050PA1031
 Governor no. : 0 421 801 642

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.95...13.05

Del.quantity cm³/ : 22.9...23.1
 100 s: (22.6...23.4)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.5
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
 Aneroid pressure h: 1000
 Del.quantity : 229.0...231.0
 1000 : (226.0...234.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.10
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.60...12.80
2nd speed rpm : 700
Rack travel in m: 13.30...13.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 700
Pressure hPa : 1000
Rack travel mm : 12.95...13.05

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 11.70...11.80
2nd pressure hPa : 300
Rack travel in m: 10.60...10.80
3rd pressure hPa : -
Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050

Del.quantity cm³/ s: 216.0...220.0
1000 s: (213.0...223.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ s: 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 270.0...290.0
1000 s: (266.0...294.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 21.08.92
 Test oil : ISO-4113

Combination no. : 0 402 646 977

Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQ300/1050PA1030-1
 Governer no. : 0 421 801 641

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.95...13.05

Del.quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.60...12.80
2nd speed rpm : 700
Rack travel in m: 13.30...13.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 700
Pressure hPa : 1000
Rack travel mm : 13.05...13.15

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 11.70...11.80
2nd pressure hPa : 300
Rack travel in m: 120.6...10.80
3rd pressure hPa : -
Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: 550

Speed rpm : 400

Del.quantity cm3/ : 188.5...191.5
1000 s: (185.5...194.5)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 10.80...11.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 21.08.92
 Test oil : ISO-4113

Combination no. : 0 402 646 978

Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQ300/950PA1031-1
 Governor no. : 0 421 801 643

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.95...13.05

Del.quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:	Spread	cm^3	: 8.00
1st rack travel in: 12.00	1000 s:	(12.0)	
Speed rpm : 990...1006			
2nd rack travel in: 4.00			
Speed rpm : 1060...1090			
4th rack travel in: 1300			
Speed rpm : 0.00...1.50			
LOW IDLE 1			
Setting point w/out bumper spring			
Speed rpm : 300			
Rack travel in mm : 5.2			
Testing:	BREAKAWAY		
Speed rpm : 200	1st version		
Minimum rack trave: 9.00	1mm rack travel less than		
Speed rpm : 300	full load rack tr: 12.00		
Rack travel in mm : 5.10...5.30	Speed rpm : 990...1006		
Rack travel in mm : 2.00			
Speed rpm : 390...430			
Aneroid/Altitude Compensator Test	Remarks:	:	
1st version			
Setting			
Speed rpm : 700			
Pressure hPa : 1000			
Rack travel mm : 12.95...13.05			
Measurement			
Speed 1/min : 400			
1st pressure hPa : 550			
Rack travel in m: 11.70...11.80			
2nd pressure hPa : 300			
Rack travel in m: 10.60...10.80			
3rd pressure hPa : -			
Rack travel in m: 9.80...10.10			
FUEL DELIVERY CHARACTERISTICS			
1st version			
Aneroid pressure h: 1000			
Speed rpm : 950			
Del.quantity $\text{cm}^3/$: 226.0...230.0			
1000 s: (223.0...233.0)			
Spread cm^3			
: 8.00			
1000 s: (12.0)			
Aneroid pressure h: 550			
Speed rpm : 400			
Del.quantity $\text{cm}^3/$: 188.5...191.5			
1000 s: (185.5...194.5)			
Aneroid pressure h: -			
Speed rpm : 500			
Del.quantity $\text{cm}^3/$: 134.0...136.0			
1000 s: (131.0...139.0)			

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 21.08.92
 Test oil : ISO-4113

Combination no. : 0 402 646 979

Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQ300/950PA1032
 Governer no. : 0 421 801 644

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.95...13.05

Del.quantity cm³/

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.90
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:
Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 700
Pressure hPa : 1000
Rack travel mm : 13.05...13.15

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 11.70...11.80
2nd pressure hPa : 300
Rack travel in m: 10.60...10.80
3rd pressure hPa : -
Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm3/ : 226.0...230.0
1000 s: (223.0...233.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)

Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 10.10...10.40

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 21.08.92
 Test oil : ISO-4113

Combination no. : 0 402 646 980

Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQV300...950PA1033
 Governor no. : 0 421 813 990

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.95...13.05

Del.quantity cm³/

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.50

2nd speed rpm : 567

travel mm : 4.40...5.00

3rd speed rpm : 780

travel mm : 6.00...6.60

4th speed rpm : 1010

travel mm : 8.50...8.70

5th speed rpm : 1190

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1066

Rack travel in mm : 10.60...13.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
Aneroid pressure h: 1000
Del.quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 116...124

Testing:

1st rack travel in: 12.00
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control Lever
position degrees: 76...84

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude

Compensator Test

1st version

Setting
Speed rpm : 700
Pressure hPa : 1000
Rack travel mm : 12.95...13.05

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 11.70...11.80
2nd pressure hPa : 300
Rack travel in m: 10.60...10.80
3rd pressure hPa : -
Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm³/ s: 226.0...230.0
1000 s: (223.0...233.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ s: 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 990...1000

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 21.08.92
 Test oil : ISO-4113

Combination no. : 0 402 646 983

Injection pump
 Pump designation : PE6P120A320LS7846
 EP type number : 0 412 626 865
 Governor
 Governor design. : RQV300...1050PA1033
 -2
 Governor no. : 0 421 813 994

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.95...13.05

Del.quantity cm³/ : 22.9...23.1
 100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.5
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 0.54...0.94
2nd speed	rpm	: 575
	travel mm	: 4.28...4.78
3rd speed	rpm	: 830
	travel mm	: 5.80...6.40
4th speed	rpm	: 1107
	travel mm	: 8.23...8.53
5th speed	rpm	: 1290
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1160

Rack travel in mm : 10.40...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 1000
Del.quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 76...84

Testing:
Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 300...400

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.60...12.80
2nd speed rpm : 850
Rack travel in m: 12.90...13.10
3rd speed rpm : 700
Rack travel in m: 12.95...13.05

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 700
Pressure hPa : 1000
Rack travel mm : 12.95...13.05

Measurement
Speed 1/min : 400

1st pressure hPa : 550

Rack travel in m: 11.70...11.80
2nd pressure hPa : 300
Rack travel in m: 10.60...10.80
3rd pressure hPa : -
Rack travel in m: 9.80...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ s: 216.0...220.0
1000 s: (213.0...223.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ s: 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1100

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.11.92
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 993

Injection pump
 Pump designation : PE6P120A320LS7852
 EP type number : 0 412 626 871
 Governor
 Governor design. : RQ300/1050PA1030-3
 Governor no. : 0 421 801 653

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

2nd version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity cm³/ : 234.0...236.0

1000 s: (231.0...239.0)

Spread cm³ : 5.00

1000 s: (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

2nd version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:
Speed rpm : 200
Minimum rack trav: 8.30
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 13.80...14.00
3rd speed rpm : 800
Rack travel in m: 14.40...14.60

Torque control curve - 2nd version
1st speed rpm : 1050
Rack travel in m: 13.8...14.0
2nd speed rpm : 800
Rack travel in m: 14.4...14.6

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500

Pressure hPa : -
Rack travel mm : 10.00...10.30

Measurement
Speed 1/min : 500
1st pressure hPa : 250
Rack travel in m: 10.90...11.00
2nd pressure hPa : 550
Rack travel in m: 12.90...13.10
2th version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel in mm : 10.0...10.3

Measurement
Speed rpm : 500
1st pressure hPa : 300
Rack travel in m: 10.7...10.8
2nd pressure hPa : 700
Rack travel in m: 12.8...13.0

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ : 223.0...227.0
1000 s: (220.0...230.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

2nd version
Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ : 223.0...227.0
1000 s: (220.0...230.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpmmin : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1095...1110

2nd version

1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 45.0...75.0
1000 s: (41.0...79.0)
Rack travel in mm : 10.00...10.40

Remarks:

:
Values of version 1 only apply to regulators with LDA spring 2 424 619 110.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 993

Injection pump
 Pump designation : PE6P120A320LS7852-1
 EP type number : 0 412 626 910
 Governor
 Governor design. : RQ300/1050PA1030-3
 Governer no. : 0 421 801 653

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.90

Speed rpm : 1095...1111
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack trave: 8.30
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.20
2nd speed rpm : 1050
Rack travel in m: 13.80...14.00
3rd speed rpm : 600
Rack travel in m: 14.00...14.10

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1100
Rack travel mm : 14.00...14.10

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.10...13.20
2nd pressure hPa : 250
Rack travel in m: 11.00...11.20
3rd pressure hPa : -
Rack travel in m: 9.90...10.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm3/ : 223.0...227.0
1000 s: (220.0...230.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1095...1111

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 45.0...75.0
1000 s: (41.0...79.0)
Rack travel in mm : 10.00...10.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 994

Injection pump
 Pump designation : PE6P120A320LS7852
 EP type number : 0 412 626 871
 Governor
 Governor design. : RQ300/950PA1032-3
 Governor no. : 0 421 801 654

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

2nd version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity cm³/ : 234.0...236.0

1000 s: (231.0...239.0)

Spread cm³ : 5.00

1000 s: (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.00
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

2nd version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.00
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:
Speed rpm : 200
Minimum rack trave: 8.30
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 370...410

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1100
Rack travel mm : 14.00...14.10

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.10...13.20
2nd pressure hPa : 250
Rack travel in m: 11.00...11.20
3rd pressure hPa : -
Rack travel in m: 9.90...10.10
2th version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel in mm : 10.1...10.4

Measurement
Speed rpm : 500

1st pressure hPa : 300
Rack travel in m: 10.8...10.9
2nd pressure hPa : 700
Rack travel in m: 12.9...13.1

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 950
Del.quantity cm3/ : 228.0...232.0
1000 s: (225.0...235.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

2nd version
Aneroid pressure h: 1100
Speed rpm : 950
Del.quantity cm3/ : 228.0...232.0
1000 s: (225.0...235.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpmmin : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 990...1006

2nd version
1mm rack travel less than
full load rack tr: 13.00

Speed rpm : 99.0...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 50.0...80.0
1000 s: (46.0...84.0)
Rack travel in mm : 10.10...10.50

Remarks:

:

Values of version 1 only apply to regulators with LDA spring 2 424 619 110.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 25.10.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 996

Injection pump
 Pump designation : PE6P120A320LS7852
 EP type number : 0 412 626 871
 Governor
 Governor design. : RQ300/1050PA1031-4
 Governer no. : 0 421 801 656

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity cm³/

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

2nd version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity cm³/

1000 s: (231.0...239.0)

Spread cm³ : 5.00

1000 s: (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.90
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

2nd version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.80
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack travel: 8.10
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.20
2nd speed rpm : 1050
Rack travel in m: 13.80...14.00
3rd speed rpm : 600
Rack travel in m: 14.00...14.10

Torque control curve - 2nd version
1st speed rpm : 1050
Rack travel in m: 13.8...14.0
2nd speed rpm : 800
Rack travel in m: 14.5...14.7

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1100
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.10...13.20
2nd pressure hPa : 250
Rack travel in m: 11.00...11.20
3rd pressure hPa : -
Rack travel in m: 9.90...10.10

2th version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel in mm : 10.0...10.3

Measurement

Speed rpm : 500

1st pressure hPa : 300
Rack travel in m: 10.7...10.8
2nd pressure hPa : 700
Rack travel in m: 12.8...13.0
3rd pressure hPa : 1000
Rack travel in m: 14.0...14.1

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ 223.0...227.0
1000 s: (220.0...230.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ 203.0...206.0
1000 s: (200.0...209.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 132.0...134.0
1000 s: (129.0...137.0)

Spread cm³ : 8.00
1000 s: (12.0)

2nd version

Aneroid pressure h: 1100
Speed rpm : 1050

Del.quantity cm³/ : 223.0...227.0
1000 s: (220.0...230.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1090...1106

2nd version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 255.0...275.0
1000 s: (251.0...279.0)

Remarks:

:
Values of version 1 only apply to regulators with LDA spring 2 424 619 110.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.10.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 997

Injection pump
 Pump designation : PE6P120A320LS7852
 EP type number : 0 412 626 871
 Governor
 Governor design. : RQV300...950PA1033-5
 Governor no. : 0 421 814 008

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.00...1.50
2nd speed	rpm	: 575
	travel mm	: 4.20...4.70
3rd speed	rpm	: 790
	travel mm	: 5.90...6.40
4th speed	rpm	: 1010
	travel mm	: 8.00...8.50
5th speed	rpm	: 1200
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1075

Rack travel in mm : 11.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity : 234.0...236.0
 1000 : (231.0...239.0)
 Spread cm³ : 5.00
 1000 : (9.00)
 2nd version
 Speed rpm : 600
 Aneroid pressure h: 1100
 Del.quantity cm³/ : 234.0...236.0
 1000 s: (231.0...239.0)
 Spread cm³ : 5.00
 1000 s: (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 116...124

Testing:
 1st rack travel in: 13.00
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1070...1100
 4th rack travel in: 1200
 Speed rpm : 0.00...1.40

2nd version
 Control lever
 position degrees: 116...124

Testing:
 1st rack travel in: 13.00
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1070...1100
 4th rack travel in: 1200
 Speed rpm : 0.00...1.40

LOW IDLE 1
 Control lever
 position degrees: 80...88

Testing:
 Speed rpm : 200
 Minimum rack trave: 8.10
 Speed rpm : 300
 Rack travel in mm : 5.80...6.00
 Rack travel in mm : 2.00
 Speed rpm : 410...470

CONSTANT REGULATION
 Speed rpm : 290...360

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600

Pressure hPa : 1100
 Rack travel mm : 14.00...14.10

Measurement:
 Speed 1/min : 400
 1st pressure hPa : 550
 Rack travel in m: 13.10...13.20
 2nd pressure hPa : 250
 Rack travel in m: 11.00...11.20
 3rd pressure hPa : -
 Rack travel in m: 9.90...10.20

2th version
 Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel in mm : 10.1...10.4

Measurement
 Speed rpm : 500
 1st pressure hPa : 300
 Rack travel in m: 10.8...10.9
 2nd pressure hPa : 700
 Rack travel in m: 12.9...13.1
 3rd pressure hPa : 1100
 Rack travel in m: 14.0...14.1

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1100
 Speed rpm : 950
 Del.quantity cm³/ : 228.0...232.0
 1000 s: (225.0...235.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm³/ : 203.0...206.0
 1000 s: (200.0...209.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 132.0...134.0
 1000 s: (129.0...137.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

2nd version
 Aneroid pressure h: 1100
 Speed rpm : 950
 Del.quantity cm³/ : 228.0...232.0
 1000 s: (225.0...235.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.00...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 990...1000

2nd version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 255.0...275.0
1000 s: (251.0...279.0)

Remarks:

:

Values of version 1 only apply to regulators with LDA spring 2 424 619 110.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.10.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 998

Injection pump
 Pump designation : PE6P120A320LS7852
 EP type number : 0 412 626 871
 Governor
 Governor design. : RQV300...1050PA1033
 -6
 Governor no. : 0 421 814 009

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA
 1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.55...0.95

2nd speed rpm : 575

travel mm : 4.30...4.80

3rd speed rpm : 625

travel mm : 4.80...5.30

4th speed rpm : 830

travel mm : 5.90...6.40

5th speed rpm : 1190

travel mm : 9.90...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 11.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 1100
Del.quantity : 234.0...236.0
1000 : (231.0...239.0)
Spread cm³ : 5.00
1000 : (9.00)

2nd version

Speed rpm : 600
Aneroid pressure h: 1100
Del.quantity cm³/s : 234.0...236.0
1000 s: (231.0...239.0)
Spread cm³ : 5.00
1000 s: (9.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 12.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

2nd version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 12.90
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 78...86

Testing:

Speed rpm : 200
Minimum rack travel: 8.70
Speed rpm : 300
Rack travel in mm : 5.80...6.00

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 0.15
2nd speed rpm : 1050
Rack travel in m: 13.80...14.00
3rd speed rpm : 600

Rack travel in m: 14.00...14.10

Torque control curve - 2nd version

1st speed rpm : 1050
Rack travel in m: 13.8...14.0
2nd speed rpm : 800
Rack travel in m: 14.0...14.2

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1100
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 13.10...13.20
2nd pressure hPa : 250
Rack travel in m: 11.00...11.20
3rd pressure hPa : -
Rack travel in m: 9.90...10.20

2th version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel in mm : 10.0...10.3

Measurement

Speed rpm : 500

1st pressure hPa : 300
Rack travel in m: 10.7...10.8
2nd pressure hPa : 700
Rack travel in m: 12.8...13.0
3rd pressure hPa : 1100
Rack travel in m: 14.0...14.1

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/s : 223.0...227.0
1000 s: (220.0...230.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400

Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

2nd version

Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ : 223.0...227.0
1000 s: (220.0...230.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpmin : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1090...1100

2nd version

1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1090...1100

Remarks:

:
Values of version 1 only apply to regulators with LDA spring 2 424 619 110.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 812

Injection pump
 Pump designation : PERP120A320LS7801-10
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQ300/1050PA717
 Governor no. : 0 421 801 258

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2-6-3-5-
 4-1

Phasing : 0-45-90-135-180-225-
 : 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm³/

100 s: (21.9...22.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.7

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.5

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 680

Del.quantity : 222.0...224.0

1000 : (219.0...227.0)

Spread cm³ : 4.00

1000 : (7.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.40
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.10...6.70
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.90
2nd speed rpm : 1050
Rack travel in m: 15.20...15.40
3rd speed rpm : 850
Rack travel in m: 15.80...16.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 310
Rack travel in m: 12.10...12.30
2nd pressure hPa : 470
Rack travel in m: 13.70...13.90
3rd pressure hPa : 820
Rack travel in m: 14.90...15.00
4th pressure hPa : 950
Rack travel in m: 15.60...16.00
5th pressure hPa : -
Rack travel in m: 11.30...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1150
Speed rpm : 1050
Del.quantity cm3/ : 225.0...229.0
1000 s: (222.0...232.0)
Spread cm3 : 7.00
1000 s: (10.0)
Aneroid pressure h: 1150
Speed rpm : 850
Del.quantity cm3/ : 243.0...247.0
1000 s: (240.0...250.0)
Spread cm3 : 7.00
1000 s: (10.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 7.00
1000 s: (10.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.40
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 818

Injection pump
 Pump designation : PE8P120A320LS7801-10
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQ300/950PA762-1
 Governor no. : 0 421 801 304

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 298.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.20...14.40

Del.quantity cm³/ : 21.0...21.2
 100 s: (20.7...21.5)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.2...2.0
 100 s: (0.9...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 750
 Del.quantity : 210.0...212.0
 1000 : (207.0...215.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 990...1010
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 14.00...14.20
2nd speed rpm : 925
Rack travel in m: 14.20...14.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.20...14.40

Measurement

Speed 1/min : 600

1st pressure hPa : 320
Rack travel in m: 11.80...12.00
2nd pressure hPa : 420
Rack travel in m: 13.40...13.60
3rd pressure hPa : 850
Rack travel in m: 14.30...14.40 *
4th pressure hPa : -
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1050
Speed rpm : 950
Del.quantity cm3/ : 211.0...214.0
1000 s: (208.0...217.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1050
Speed rpm : 800
Del.quantity cm3/ : 225.0...228.0
1000 s: (222.0...231.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 152.0...154.0
1000 s: (149.0...157.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 990...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...195.0
1000 s: (176.0...199.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 819
 Injection pump
 Pump designation : PE8P120A320L57801-10
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQ300/900PA762-2
 Governer no. : 0 421 801 305
 Customer-spec. information
 Customer : DAIMLER-BENZ
 Engine : OM442 LA

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 : 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 19.2...19.5

100 s: (18.9...19.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.2...2.0

100 s: (0.9...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 750

Del.quantity : 192.0...195.0

1000 : (189.0...198.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10
Speed rpm : 940...955
2nd rack travel in: 4.00
Speed rpm : 1020...1050
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL
Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.00...13.10
2nd speed rpm : 600
Rack travel in m: 14.20...15.40
3rd speed rpm : 850
Rack travel in m: 13.50...13.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.40

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.70...11.80
2nd pressure hPa : 450
Rack travel in m: 13.20...13.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 750
Speed rpm : 600
Del.quantity cm3/ : 209.0...211.0
1000 s: (206.0...214.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 153.0...155.0
1000 s: (150.0...158.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 940...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 175.0...190.0
1000 s: (171.0...194.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 824

Injection pump
 Pump designation : PE8P120A320LS7801-10
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQV300...1050PA797
 Governor no. : 0 421 813 532

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2-6-3-5-
 4-1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm³/

100 s: (21.8...22.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.6

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 1075

travel mm : 7.40...7.60

4th speed rpm : 1100

travel mm : 8.00...8.20

5th speed rpm : 1150

travel mm : 9.00...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure hPa : 680
 Del.quantity : 221.0...223.0
 1000 : (218.0...226.0)
 Spread cm³ : 4.00
 1000 : (7.00)

RATED SPEED

1st version
 Control lever
 position degrees: 117...125

Testing:
 1st rack travel in: 14.20
 Speed rpm : 1095...1110
 2nd rack travel in: 4.00
 Speed rpm : 1160...1190
 4th rack travel in: 1300
 Speed rpm : 0.00...1.50

LOW IDLE 1
 Control lever
 position degrees: 82...90

Testing:
 Speed rpm : 100
 Minimum rack travel: 7.90
 Speed rpm : 300
 Rack travel in mm : 6.20...6.40

CONSTANT REGULATION
 Speed rpm : 300...500

TORQUE CONTROL
 Dimension a mm : 0.40
 2nd speed rpm : 1050
 Rack travel in m: 15.20...15.40
 3rd speed rpm : 850
 Rack travel in m: 15.80...16.10

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 680
 Rack travel mm : 14.70...14.90

Measurement
 Speed 1/min : 600

1st pressure hPa : 310
 Rack travel in m: 12.10...12.30
 2nd pressure hPa : 470
 Rack travel in m: 13.70...13.90

3rd pressure hPa : 820
 Rack travel in m: 14.90...15.00
 4th pressure hPa : 1100
 Rack travel in m: 15.90...16.00
 5th pressure hPa : -
 Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure hPa : 1150
 Speed rpm : 1050
 Del.quantity cm³/s : 229.0...232.0
 1000 s: (226.0...235.0)
 Spread cm³ : 7.00
 1000 s: (10.0)
 Aneroid pressure hPa : 1150
 Speed rpm : 850
 Del.quantity cm³/s : 246.0...250.0
 1000 s: (243.0...253.0)
 Spread cm³ : 7.00
 1000 s: (10.0)
 Aneroid pressure hPa : -
 Speed rpm : 500
 Del.quantity cm³/s : 148.0...150.0
 1000 s: (145.0...153.0)
 Spread cm³ : 7.00
 1000 s: (10.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 14.20
 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/s : 200.0...220.0
 1000 s: (196.0...224.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 832

Injection pump
 Pump designation : PE8P120A320LS7810-10
 EP type number : 0 412 628 852
 Governor
 Governor design. : RQ300/1050PA858
 Governer no. : 0 421 801 398

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 368.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 19.50...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm³/ : 23.9...24.1
 100 s: (23.6...24.4)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.5
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 239.0...241.0
 1000 : (236.0...244.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.10
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 200
Minimum rack trave: 7.40
Speed rpm : 300
Rack travel in mm : 5.20...5.50
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.35
2nd speed rpm : 1050
Rack travel in m: 15.10...15.30
3rd speed rpm : 800
Rack travel in m: 13.30...15.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.30...14.50

Measurement

Speed 1/min : 600

1st pressure hPa : 320
Rack travel in m: 10.20...10.40
2nd pressure hPa : 620
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1100
Rack travel in m: 14.40...14.50
4th pressure hPa : -
Rack travel in m: 8.40...8.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm3/ : 257.0...260.0
1000 s: (254.0...263.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 265.0...269.0
1000 s: (262.0...272.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 30.04.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 864

Injection pump
Pump designation : PE8P120A320LS7816-10
EP type number : 0 412 628 836
Governor
Governor design. : RQ300/950PA762-7
Governor no. : 0 421 801 480

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm³/

100 s: (25.1...25.9)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.5

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 254.0...256.0

1000 : (251.0...259.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.20
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 5.90...6.50
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.90
2nd speed rpm : 950
Rack travel in m: 15.20...15.40
3rd speed rpm : 800
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 12.20...12.40
2nd pressure hPa : 700
Rack travel in m: 13.80...14.00
3rd pressure hPa : 1200
Rack travel in m: 14.80...15.00
4th pressure hPa : 1500
Rack travel in m: 15.50...15.70
5th pressure hPa : -
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 950
Del.quantity cm3/ : 270.0...273.0
1000 s: (267.0...276.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm3/ : 270.0...274.0
1000 s: (267.0...277.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.20
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 871

Injection pump
 Pump designation : PE8P120A320LS7801-10
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQ300/1050PA932
 Governor no. : 0 421 801 494

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2- 6- 3- 5-
 4-1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 20.1...20.3
 100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.4
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500
 Aneroid pressure h: 650
 Del.quantity : 201.0...203.0
 1000 : (198.0...206.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.80
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.00...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.75
2nd speed rpm : 1050
Rack travel in m: 12.80...13.00
3rd speed rpm : 850
Rack travel in m: 13.70...14.00
4th speed rpm : 700
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.40...12.60
2nd pressure hPa : 400
Rack travel in m: 13.40...13.70
3rd pressure hPa : 850
Rack travel in m: 14.20...14.30 *
4th pressure hPa : -
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1050
Speed rpm : 1050
Del.quantity cm3/ : 180.0...183.0
1000 s: (177.0...186.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1050
Speed rpm : 700
Del.quantity cm3/ : 215.0...219.0
1000 s: (212.0...222.0)
Spread cm3 : 8.00
1000 s: (12.0)
Speed rpm : 850
Del.quantity cm3/ : 206.0...210.0
1000 s: (203.0...213.0)
Spread cm3 : 8.00
1000 s: (12.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 175.0...190.0
1000 s: (171.0...194.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 873

Injection pump
 Pump designation : PE8P120A920/4LS7166
 EP type number : 0 412 628 832
 Governor
 Governor design. : RQ900PA758-13
 Governor no. : 0 421 801 501

Customer-spec. information
 Customer : SCANIA

Engine : DS 14

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 7- 3- 4- 5-
 6- 8

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 24.6...24.8

100 s: (24.3...25.1)

Spread cm³ : 0.7

100 s: (1.0)

2nd speed rpm : 500

Rack travel in mm : 10.0...10.4

Del.quantity cm³/ : 15.8...16.2

100 s: (15.6...16.4)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 900

Del.quantity : 246.0...248.0

1000 : (243.0...251.0)

Spread cm³ : 7.00

1000 : (10.00)

RATED SPEED

1st version

Control lever

position degrees: 82...90

Testing:

1st rack travel in: 11.50

Speed rpm : 900...905

2nd rack travel in: 4.00

Speed rpm : 941...950

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.00...10.40

2nd pressure hPa : 365

Rack travel in m: 11.80...11.90

3rd pressure hPa : 215

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Det.quantity cm³/ : 158.0...162.0

1000 s: (156.0...164.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 900...905

HIGH IDLE

1st version

Rack travel in mm : 5.00...5.20

Spread cm³ : 4.00

1000 s: (7.00)

Remarks:

:

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Generator

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 876

Injection pump
 Pump designation : PE8P120A320LS7816-10
 EP type number : 0 412 628 836
 Governor
 Governor design. : RQ300/1050PA952-1
 Governor no. : 0 421 801 509

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.4...23.7

100 s: (23.1...24.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.5
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 234.0...237.0

1000 : (231.0...240.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.30

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.2

Testing:

Speed rpm : 200

Minimum rack trave: 7.80

Speed rpm : 300

Rack travel in mm : 5.90...6.50

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.40

2nd speed rpm : 1050

Rack travel in m: 14.30...14.50

3rd speed rpm : 850

Rack travel in m: 15.00...15.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 900

Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 11.10...11.30

2nd pressure hPa : 650

Rack travel in m: 12.80...13.00

3rd pressure hPa : 1050

Rack travel in m: 13.70...13.80 *

4th pressure hPa : 1350

Rack travel in m: 14.60...14.80

5th pressure hPa : -

Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 1050

Del.quantity cm³/ : 252.0...256.0

1000 s: (249.0...259.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1600

Speed rpm : 850

Del.quantity cm³/ : 270.0...274.0

1000 s: (267.0...277.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 149.0...151.0

1000 s: (146.0...154.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.30

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 10.20...10.50

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 878

Injection pump
 Pump designation : PE8P120A320LS7801-10
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQ300/950PA762-9
 Governer no. : 0 421 801 510

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A
 1st version kW : 269.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 800

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.90

Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1060...1090

4th rack travel in: 1200

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.2

Testing:

Speed rpm : 200

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.00...6.40

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.75

2nd speed rpm : 950

Rack travel in m: 12.90...13.10

3rd speed rpm : 800

Rack travel in m: 14.20...14.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 800

Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 11.80...12.00

2nd pressure hPa : 500

Rack travel in m: 13.30...13.60

3rd pressure hPa : 950

Rack travel in m: 14.10...14.20 *

4th pressure hPa : -

Rack travel in m: 10.60...11.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1150

Speed rpm : 950

Del.quantity cm³/ : 190.0...193.0

1000 s: (187.0...196.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1150

Speed rpm : 750

Del.quantity cm³/ : 216.0...219.0

1000 s: (213.0...222.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 138.0...140.0

1000 s: (135.0...143.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 175.0...190.0

1000 s: (171.0...194.0)

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 881

Injection pump
 Pump designation : PE8P120A320LS7816-10
 EP type number : (i) 412 628 836
 Governor
 Governor design. : RQV300...950PA797-13
 Governor no. : 0 421 813 841

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm³/ : 25.4...25.6
 100 s: (25.1...25.9)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.5
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.10...1.40
2nd speed	rpm	: 700
	travel mm	: 5.50...6.00
3rd speed	rpm	: 1100
	travel mm	: 8.30...8.80
4th speed	rpm	: 1090
	travel mm	: 9.70...10.20
5th speed	rpm	: 1190
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1000
 Rack travel in mm : 16.20...18.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure hPa : 1000
 Del.quantity : 254.0...256.0
 1000 : (251.0...259.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 120...128

Testing:
 1st rack travel in: 14.20
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1080...1110
 4th rack travel in: 1150
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 82...90

Testing:
 Speed rpm : 200
 Minimum rack trave: 7.80
 Speed rpm : 300
 Rack travel in mm : 5.90...6.50

CONSTANT REGULATION
 Speed rpm : 300...500

TORQUE CONTROL
 Dimension a mm : ?
 2nd speed rpm : 950
 Rack travel in m: 15.20...15.40
 3rd speed rpm : 800
 Rack travel in m: 15.50...15.70

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 1000
 Rack travel mm : 14.60...14.80

Measurement
 Speed 1/min : 600
 1st pressure hPa : 350
 Rack travel in m: 12.00...12.20
 2nd pressure hPa : 700
 Rack travel in m: 13.80...14.00

3rd pressure hPa : 1200
 Rack travel in m: 14.80...15.00
 4th pressure hPa : 1500
 Rack travel in m: 15.50...15.70
 5th pressure hPa : -
 Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1600
 Speed rpm : 950
 Del.quantity cm³/ : 270.0...273.0
 1000 s: (267.0...276.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1600
 Speed rpm : 800
 Del.quantity cm³/ : 270.0...274.0
 1000 s: (267.0...277.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 145.0...147.0
 1000 s: (142.0...150.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 14.20
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 240.0...260.0
 1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 882

Injection pump
 Pump designation : PE8P120A320LS7801-10
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQV300...950PA797-35
 Governer no. : 0 421 813 974

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 269.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 20.3...20.5

100 s: (20.0...20.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.10...1.50
2nd speed	rpm	: 600
	travel mm	: 4.80...5.30
3rd speed	rpm	: 950
	travel mm	: 7.60...8.10
4th speed	rpm	: 1050
	travel mm	: 9.00...9.50
5th speed	rpm	: 1100
	travel mm	: 9.90...10.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 990

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 500
 Aneroid pressure h: 1150
 Del.quantity : 203.0...205.0
 1000 : (200.0...208.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 117...125

Testing:

1st rack travel in: 11.90
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1060...1090
 4th rack travel in: 1200
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 84...92

Testing:

Speed rpm : 200
 Minimum rack trave: 8.00
 Speed rpm : 300
 Rack travel in mm : 6.00...6.40

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?
 2nd speed rpm : 950
 Rack travel in m: 12.90...13.10
 3rd speed rpm : 500
 Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : -
 Rack travel mm : 10.60...11.00

Measurement
 Speed 1/min : 600

1st pressure hPa : 350
 Rack travel in m: 11.00...11.20
 2nd pressure hPa : 500
 Rack travel in m: 12.60...12.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1150
 Speed rpm : 950
 Del.quantity cm³/s : 189.0...192.0
 1000 s: (186.0...195.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/s : 134.0...136.0
 1000 s: (131.0...139.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 11.90
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/s : 175.0...190.0
 1000 s: (171.0...194.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 889

Injection pump
 Pump designation : PE8P120A320LS7816-10
 EP type number : 0 412 628 836
 Governor
 Governor design. : RQ300/950PA932-2
 Governer no. : 0 421 801 526

Customer spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 362.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm³/ : 25.5...25.7
 100 s: (25.2...26.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.5
 Del.quantity cm³/ : 1.3...1.9
 100 s: (1.0...2.2)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 1000
 Del.quantity : 255.0...257.0
 1000 : (252.0...260.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.20

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.2

Testing:

Speed rpm : 200

Minimum rack trave: 7.80

Speed rpm : 300

Rack travel in mm : 5.90...6.50

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.90

2nd speed rpm : 950

Rack travel in m: 15.20...15.40

3rd speed rpm : 800

Rack travel in m: 15.50...15.70

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 1000

Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 11.60...11.80

2nd pressure hPa : 700

Rack travel in m: 13.80...14.00

3rd pressure hPa : 1200

Rack travel in m: 14.80...15.00

4th pressure hPa : 1300

Rack travel in m: 15.20...15.40

5th pressure hPa : -

Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 950

Del.quantity cm³/ : 266.0...269.0

1000 s: (263.0...272.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1600

Speed rpm : 800

Del.quantity cm³/ : 267.0...271.0

1000 s: (264.0...274.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 141.0...143.0

1000 s: (138.0...146.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.20

Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 890

Injection pump
 Pump designation : PESP120A320LS7801-1C
 EP type number : 0 412 628 851
 Governor
 Governor design. : RQ300/950PA932-5
 Governor no. : 0 421 801 621

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 269.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 20.3...20.5
 100 s: (20.0...20.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.4
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500
 Aneroid pressure h: 1150
 Del.quantity : 203.0...205.0
 1000 : (200.0...208.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.90

Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1060...1090

4th rack travel in: 12.00

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.2

Testing:

Speed rpm : 200

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.00...6.40

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.75

2nd speed rpm : 950

Rack travel in m: 12.90...13.10

3rd speed rpm : 800

Rack travel in m: 14.20...14.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : -

Rack travel mm : 10.60...11.00

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 11.00...11.20

2nd pressure hPa : 500

Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1150

Speed rpm : 950

Del.quantity cm³/ : 189.0...192.0

1000 s: (186.0...195.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 136.0...138.0

1000 s: (133.0...141.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 990...1000

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.10.93
 Replaces : 21.08.92
 Test oil : ISO-4113

 Combination no. : 0 402 648 893X

 Injection pump
 Pump designation : PE8P120A320LS7835-10
 EP type number : 0 412 628 853
 Governor
 Governor design. : RQ300/950PA971-2
 Governer no. : 0 421 801 548

 Cust. part no. : 0200740602

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM402 LA

 1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 105

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 075

 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm	: 5.50...5.60
	: (5.45...5.65)
Rack travel in mm	: 20.00...21.00
Firing order	: 8- 7- 2- 6- 3- 5- 4- 1
Phasing	: 0-45-90-135-180-225- 270-315
Tolerance + - °	: 0.50 (0.75)
Time to cyl. no.	: 8

BASIC SETTING

1st speed rpm	: 750
Rack travel in mm	: 14.60...14.80
Del.quantity cm ³ /	: 23.0...23.2
100 s:	(22.7...23.5)
Spread cm ³	: 0.6
100 s:	(0.9)
2nd speed rpm	: 300.0
Rack travel in mm	: 5.9...6.5
Del.quantity cm ³ /	: 1.6...2.2
100 s:	(1.3...2.5)
Spread cm ³	: 0.6
100 s:	(1.0)

GUIDE SLEEVE POSITION

Control-lever position	
Degree:	-2
Speed rpm	: 600
Rack travel in mm	: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	
Speed rpm	: 750
Aneroid pressure h:	1200
Del.quantity	: 230.0...232.0
1000	: (227.0...235.0)
Spread cm ³	: 6.00
1000	: (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.10
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 6.10...6.30
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.65...14.75
2nd speed rpm : 950
Rack travel in m: 14.00...14.20
3rd speed rpm : 800
Rack travel in m: 14.60...14.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 750
Pressure hPa : 1200
Rack travel mm : 14.65...14.75

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: ?
2nd pressure hPa : 250
Rack travel in m: 10.95...11.15
3rd pressure hPa : -
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm3/ : 215.5...219.5
1000 s: (211.5...222.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 40.0...70.0
1000 s: (36.0...74.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.10.93
 Replaces : 21.08.92
 Test oil : ISO-4113

 Combination no. : 0 402 648 894X

 Injection pump
 Pump designation : PE8P120A320LS7835-10
 EP type number : 0 412 628 853
 Governor
 Governor design. : RQV300...950PA797-18
 Governor no. : 0 421 813 886

 Cust. part no. : 0200740702

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM402 LA

 1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 105

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 075

 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.60...14.80

Del.quantity cm³/ : 23.0...23.2

100 s: (22.7...23.5)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.5
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.00...1.50
2nd speed	rpm	: 567
	travel mm	: 4.40...4.90
3rd speed	rpm	: 780
	travel mm	: 6.10...6.60
4th speed	rpm	: 1009
	travel mm	: 8.30...8.80
5th speed	rpm	: 1092
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1
Speed rpm : 980
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750
Aneroid pressure h: 1200
Del.quantity : 230.0...232.0
1000 : (227.0...235.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 122...130

Testing:

1st rack travel in: 13.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 80...88

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 250...360

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.65...14.75
2nd speed rpm : 950
Rack travel in m: 14.00...14.20
3rd speed rpm : 800
Rack travel in m: 14.60...14.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 750
Pressure hPa : 1200
Rack travel mm : 14.65...14.75

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: ?
2nd pressure hPa : 250
Rack travel in m: 10.95...11.15
3rd pressure hPa : -
Rack travel in m: 10.30...10.60

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm³/ : 215.5...219.5
1000 s: (212.5...222.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...230.0
1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.10.93
 Replaces : 26.02.93
 Test oil : ISO-4113

 Combination no. : 0 402 648 895X

 Injection pump
 Pump designation : PE8P120A320LS7835-10
 EP type number : 0 412 628 853
 Governor
 Governor design. : RQ300/1050PA972-1
 Governer no. : 0 421 801 545

 Cust. part no. : 0180742102

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM402 LA

 1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 105

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 075

 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

 Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

 Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

 Rack travel in mm : 14.60...14.80

 Del.quantity cm³/ : 23.0...23.2
 100 s: (22.7...23.5)

 Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.5
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 300
 travel mm : 1.70...1.90
 2nd speed rpm : 510
 travel mm : 5.90...6.10
 3rd speed rpm : 845
 travel mm : 6.30...6.50
 4th speed rpm : 1109
 travel mm : 6.70...6.90
 5th speed rpm : 1270
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION
 Control-lever position

Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750
Aneroid pressure h: 1200
Del.quantity : 230.0...232.0
1000 : (227.0...235.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.10...6.30
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.90...14.10
2nd speed rpm : 800
Rack travel in m: 14.60...14.80
3rd speed rpm : 750
Rack travel in m: 14.65...14.75

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 750

Pressure hPa : 1200
Rack travel mm : 14.65...14.75

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: ?
2nd pressure hPa : 250
Rack travel in m: 11.15...11.35
3rd pressure hPa : -
Rack travel in m: 10.10...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/ : 213.5...217.5
1000 s: (210.5...220.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 40.0...70.0
1000 s: (36.0...74.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w 2
 Edition : 29.11.91
 Replaces : 09.91
 Test oil : ISO-4113

Combination no. : 0 402 648 898

Injection pump
 Pump designation : PE8P120A320LS7838
 EP type number : 0 412 628 848
 Governor
 Governor design. : RQ300/950PA971-4
 Governor no. : 0 421 801 558

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del.quantity cm³/ : 22.3...22.5
 100 s: (22.0...22.8)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.2...6.8
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 223.0...225.0
 1000 : (220.0...228.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 200

Minimum rack trave: 7.80

Speed rpm : 300

Rack travel in mm : 6.20...6.80

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 950

Rack travel in m: 14.50...14.70

3rd speed rpm : 800

Rack travel in m: 15.00...15.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 900

Rack travel mm : 13.80...14.00

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 10.10...10.30

2nd pressure hPa : 650

Rack travel in m: 12.80...13.00

3rd pressure hPa : 1100

Rack travel in m: 13.90...14.10 *

4th pressure hPa : 1350

Rack travel in m: 14.70...15.00

5th pressure hPa : -

Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 950

Del.quantity cm³/ 1000 s: 234.0...237.0
(231.0...240.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1600

Speed rpm : 800

Del.quantity cm³/ 1000 s: 243.0...247.0

(240.0...250.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ 1000 s: 138.0...140.0

(135.0...143.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 8.90...9.20

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 03.12.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 898

Injection pump
 Pump designation : PE8P120A320LS7838-10
 EP type number : 0 412 628 854
 Governor
 Governor design. : RQ300/950PA971-4
 Governor no. : 0 421 801 558

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del.quantity cm³/ : 22.3...22.5

100 s: (22.0...22.8)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 223.0...225.0

1000 : (220.0...228.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 200

Minimum rack trave: 7.80

Speed rpm : 300

Rack travel in mm : 6.20...6.80

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 950

Rack travel in m: 14.50...14.70

3rd speed rpm : 800

Rack travel in m: 15.00...15.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 900

Rack travel mm : 13.80...14.00

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 10.10...10.30

2nd pressure hPa : 650

Rack travel in m: 12.80...13.00

3rd pressure hPa : 1100

Rack travel in m: 13.90...14.10 *

4th pressure hPa : 1350

Rack travel in m: 14.70...15.00

5th pressure hPa : -

Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 950

Del.quantity cm³/ s: 234.0...237.0
1000 s: (231.0...240.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1600

Speed rpm : 800

Del.quantity cm³/ s: 243.0...247.0
1000 s: (240.0...250.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ s: 138.0...140.0
1000 s: (135.0...143.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 8.90...9.20

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 21.10.93
 Replaces : 11.92
 Test oil : ISO-4113

 Combination no. : 0 402 648 898X

 Injection pump
 Pump designation : PE8P120A320LS7838-10
 EP type number : 0 412 628 854
 Governor
 Governor design. : RQ300/950PA971-4
 Governor no. : 0 421 801 558

 Cust. part no. : 0200743402

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM442 LA

 1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 105

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 075

 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

 Rack travel in mm : 14.40...14.50

 Del.quantity cm³/ : 23.7...23.9
 100 s: (23.4...24.2)

 Spread cm³ : 0.6
 100 s: (0.9)

 2nd speed rpm : 300.0
 Rack travel in mm : 6.2...6.8
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1200
 Del.quantity : 237.0...239.0
 1000 : (234.0...242.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 500
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.30
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 950
Rack travel in m: 14.20...14.40
3rd speed rpm : 600
Rack travel in m: 14.40...14.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 14.40...14.50

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.55...12.65
2nd pressure hPa : 250
Rack travel in m: 9.80...10.80
3rd pressure hPa : -
Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200

Speed rpm : 950
Del.quantity cm³/ 1000 s: 230.0...234.0
1000 s: (227.0...237.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ 1000 s: 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 8.90...9.30

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.10.93
 Replaces : 18.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 899

Injection pump
 Pump designation : PE8P120A320LS7839-10
 EP type number : 0 412 628 855
 Governor
 Governor design. : RQ300/950PA971-5
 Governor no. : 0 421 801 559

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.10...15.30

Del.quantity cm3/ : 26.5...26.7
 100 s: (26.2...27.0)

Spread cm3 : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.6
 Del.quantity cm3/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm3 : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 900
 Del.quantity : 265.0...267.0
 1000 : (262.0...270.0)
 Spread cm3 : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.50

Speed rpm : 990...1006

2nd rack travel in: 4.00

Speed rpm : 1075...1105

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.3

Testing:

Speed rpm : 200

Minimum rack trave: 7.60

Speed rpm : 300

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

Speed rpm : 370...410

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 900

Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 400

1st pressure hPa : 550

Rack travel in m: 12.90...13.00

2nd pressure hPa : 250

Rack travel in m: 10.15...10.25

3rd pressure hPa : 900

Rack travel in m: 15.10...15.30

4th pressure hPa : 1100

Rack travel in m: 15.30...15.40 *

5th pressure hPa : -

Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 2000

Speed rpm : 950

Del.quantity cm³/ : 281.0...284.0

1000 s: (278.0...287.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1300

Speed rpm : 700

Del.quantity cm³/ : 271.5...274.5

1000 s: (268.5...277.5)

Spread cm³ : -

1000 s: (-)

Aneroid pressure h: 550

Speed rpm : 400

Del.quantity cm³/ : 203.0...206.0

1000 s: (200.0...209.0)

Spread cm³ : -

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 132.0...134.0

1000 s: (129.0...137.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 15.30

Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 80.0...100.0

1000 s: (76.0...104.0)

Rack travel in mm : 9.10...9.50

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 901

Injection pump
 Pump designation : PE8P120A320LS7840-10
 EP type number : 0 412 628 856
 Governor
 Governor design. : RQV300...1050PA797
 -21
 Governor no. : 0 421 813 894

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A
 1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 : 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.30...13.50

Del.quantity cm³/ : 20.6...20.8
 100 s: (20.3...21.1)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.10...1.60
2nd speed	rpm	: 470
	travel mm	: 3.00...3.50
3rd speed	rpm	: 830
	travel mm	: 5.90...6.40
4th speed	rpm	: 1110
	travel mm	: 8.20...8.70
5th speed	rpm	: 1183
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1125
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 206.0...208.0
1000 : (203.0...211.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 200
Minimum rack trav: 7.90
Speed rpm : 300
Rack travel in mm : 6.10...6.70

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 12.90...13.10
3rd speed rpm : 800
Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 11.10...11.30
2nd pressure hPa : 650

Rack travel in m: 12.60...12.80
3rd pressure hPa : 1050
Rack travel in m: 13.40...13.50 *
4th pressure hPa : 1250
Rack travel in m: 14.00...14.20
5th pressure hPa : -
Rack travel in m: 10.60...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm³/ : 194.0...197.0
1000 s: (191.0...200.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ : 220.0...224.0
1000 s: (217.0...227.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 123.0...125.0
1000 s: (120.0...128.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.10.93
 Replaces : 18.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 902

Injection pump
 Pump designation : PE8P120A320LS7839-10
 EP type number : 0 412 628 855
 Governor
 Governor design. : RQ300/1050PA972-5
 Governor no. : 0 421 801 564

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.10...15.30

Del.quantity cm³/ : 26.5...26.7
 100 s: (26.2...27.0)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 550
 Aneroid pressure h: 900
 Del.quantity : 265.0...267.0
 1000 : (262.0...270.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.30
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 16.20...16.40
3rd speed rpm : 800
Rack travel in m: 16.40...16.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 900
Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.90...13.00
2nd pressure hPa : 250
Rack travel in m: 10.10...10.30
3rd pressure hPa : 1100
Rack travel in m: 15.30...15.40 *
4th pressure hPa : 1300
Rack travel in m: 15.70...15.80
5th pressure hPa : -
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 2000
Speed rpm : 1050

Del.quantity cm³/ s : 271.0...274.0
1000 s: (268.0...277.0)
Spread cm³ : 3.00
1000 s: (12.0)
Aneroid pressure h: 2000
Speed rpm : 800
Del.quantity cm³/ s : 283.0...287.0
1000 s: (280.0...290.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 700
Del.quantity cm³/ s : 272.0...275.0
1000 s: (269.0...278.0)
Spread cm³ : -
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 15.30
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 9.10...9.50

Remarks:
:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.10.93
 Replaces : 03.12.92
 Test oil : ISO-4113

 Combination no. : 0 402 648 906X

 Injection pump
 Pump designation : PE8P120A320LS7838-10
 EP type number : 0 412 628 854
 Governor
 Governor design. : RQ300/1050PA972-6
 Governor no. : 0 421 801 569

 Cust. part no. : 0200743602

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM442 LA

 1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 105

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 075

 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	: (5.15...5.35)
Rack travel in mm	: 20.00...21.00
Firing order	: 8- 7- 2- 6- 3- 5- 4- 1
Phasing	: 0-45-90-135-180-225- 270-315
Tolerance + - °	: 0.50 (0.75)
Time to cyl. no.	: 8

BASIC SETTING

1st speed rpm	: 600
Rack travel in mm	: 14.40...14.50
Del.quantity cm ³ /	: 23.7...23.9
100 s:	(23.4...24.2)
Spread cm ³	: 0.6
100 s:	(0.9)
2nd speed rpm	: 300.0
Rack travel in mm	: 6.2...6.8
Del.quantity cm ³ /	: 1.6...2.2
100 s:	(1.3...2.5)
Spread cm ³	: 0.6
100 s:	(1.0)

GUIDE SLEEVE POSITION

Control-lever position	
Degree:	-2
Speed rpm	: 600
Rack travel in mm	: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	
Speed rpm	: 600
Aneroid pressure h:	1200
Del.quantity	: 237.0...239.0
1000	: (234.0...242.0)
Spread cm ³	: 6.00
1000	: (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.30
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 14.40...14.50
2nd speed rpm : 1050
Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 14.40...14.50

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.55...12.65
2nd pressure hPa : 250
Rack travel in m: 9.80...10.00
3rd pressure hPa : -
Rack travel in m: 8.90...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 222.0...226.0
cm³ : (219.0...229.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ 1000 s: 203.0...206.0
cm³ : (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 132.0...134.0
cm³ : (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1090...1106

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.10.93
 Replaces : 18.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 907

Injection pump
 Pump designation : PE8P120A320LS7839-10
 EP type number : 0 412 628 855
 Governor
 Governor design. : RQV300...950PA797-22
 Governor no. : 0 421 813 909

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.10...15.30

Del.quantity cm³/

100 s: (26.2...27.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.50
 2nd speed rpm : 617
 travel mm : 5.00...5.50
 3rd speed rpm : 780
 travel mm : 6.10...6.60
 4th speed rpm : 1010
 travel mm : 8.30...8.80
 5th speed rpm : 1092
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 550

Aneroid pressure h: 900
Del.quantity : 265.0...267.0
1000 : (262.0...270.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 15.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1100...1130
4th rack travel in: 1200
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 900
Rack travel mm : 15.00...15.40

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.90...13.00
2nd pressure hPa : 250
Rack travel in m: 10.10...10.30
3rd pressure hPa : 1100
Rack travel in m: 15.20...15.40 *
4th pressure hPa : 1300
Rack travel in m: 15.60...15.70 *
5th pressure hPa : -
Rack travel in m: 9.10...9.40

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 2000
Speed rpm : 950
Del.quantity cm³/ : 281.0...284.0
1000 s: (278.0...287.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 1300

Speed rpm : 700
Del.quantity cm³/ : 271.5...274.5
1000 s: (268.5...277.5)

Aneroid pressure h: 550

Speed rpm : 400
Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 3.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 15.00
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...295.0
1000 s: (271.0...299.0)

Remarks:

: * N = 700

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w 1
 Edition : 27.03.92
 Replaces : 04.91
 Test oil : ISO-4113

Combination no. : 0 402 648 908

Injection pump
 Pump designation : PERP120A320LS7838
 EP type number : 0 412 628 848
 Governor
 Governor design. : RQV300...950PA797-23
 Governer no. : 0 421 813 910

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version: kw : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del.quantity cm³/ 100 s: 22.3...22.5
 100 s: (22.0...22.8)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.4...5.8
 Del.quantity cm³/ 100 s: 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.00...1.50
2nd speed	rpm	: 617
	travel mm	: 5.00...5.50
3rd speed	rpm	: 780
	travel mm	: 6.10...6.60
4th speed	rpm	: 1009
	travel mm	: 8.30...8.80
5th speed	rpm	: 1092
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1
 Speed rpm : 1020
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 223.0...225.0
 1000 : (220.0...228.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 120...128

Testing:
 1st rack travel in: 13.50
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1080...1110
 4th rack travel in: 1200
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 82...90

Testing:
 Speed rpm : 200
 Minimum rack trave: 7.80
 Speed rpm : 300
 Rack travel in mm : 6.20...6.80

CONSTANT REGULATION
 Speed rpm : 300...500

TORQUE CONTROL
 Dimension a mm : 0.70
 2nd speed rpm : 950
 Rack travel in m: 14.50...14.70
 3rd speed rpm : 800
 Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 900
 Rack travel mm : 13.80...14.00

Measurement
 Speed 1/min : 600

1st pressure hPa : 350
 Rack travel in m: 9.80...10.00
 2nd pressure hPa : 650
 Rack travel in m: 12.80...13.00

3rd pressure hPa : 1100
 Rack travel in m: 13.90...14.10 *
 4th pressure hPa : 1350
 Rack travel in m: 15.80...15.00
 5th pressure hPa : -
 Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1600
 Speed rpm : 950
 Del.quantity cm³/s : 234.0...237.0
 1000 s: (231.0...240.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1600
 Speed rpm : 800
 Del.quantity cm³/s : 243.0...247.0
 1000 s: (240.0...250.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/s : 138.0...140.0
 1000 s: (135.0...143.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.50
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/s : 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:
 :

* Increase in control-rod travel with
 respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 10.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 908

Injection pump
 Pump designation : PE8P120A320LS7836-10
 EP type number : 0 412 628 854
 Governor
 Governor design. : RQV300...950PA797-23
 Governor no. : 0 421 813 910

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 : 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del.quantity cm3/l : 22.3...22.5

100 s: (22.0...22.8)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.4...5.8

Del.quantity cm3/l : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 617

travel mm : 5.00...5.50

3rd speed rpm : 780

travel mm : 6.10...6.60

4th speed rpm : 1009

travel mm : 8.30...8.80

5th speed rpm : 1092

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 223.0...225.0
 1000 : (220.0...228.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 120...128

Testing:
 1st rack travel in: 13.50
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1080...1110
 4th rack travel in: 1200
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 82...90

Testing:
 Speed rpm : 200
 Minimum rack trave: 7.80
 Speed rpm : 300
 Rack travel in mm : 6.20...6.80

CONSTANT REGULATION
 Speed rpm : 300...500

TORQUE CONTROL
 Dimension a mm : 0.70
 2nd speed rpm : 950
 Rack travel in m: 14.50...14.70
 3rd speed rpm : 800
 Rack travel in m: 15.20...15.40

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 900
 Rack travel mm : 13.80...14.00

Measurement
 Speed 1/min : 600

1st pressure hPa : 350
 Rack travel in m: 9.80...10.00
 2nd pressure hPa : 650
 Rack travel in m: 12.80...13.00

3rd pressure hPa : 1100
 Rack travel in m: 13.90...14.10 *
 4th pressure hPa : 1350
 Rack travel in m: 15.80...15.00
 5th pressure hPa : -
 Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1600
 Speed rpm : 950
 Del.quantity cm³/ : 234.0...237.0
 1000 s: (231.0...240.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1600
 Speed rpm : 800
 Del.quantity cm³/ : 243.0...247.0
 1000 s: (240.0...250.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 138.0...140.0
 1000 s: (135.0...143.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.50
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:
 :

* Increase in control-rod travel with
 respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.10.93
 Replaces : 27.11.92
 Test oil : ISO-4113

Combination no. : 0 402 648 908X

Injection pump
 Pump designation : PE8P120A320LS7833-10
 EP type number : 0 412 628 854
 Governor
 Governor design. : RQV300...950PA797-23
 Governer no. : 0 421 813 910

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.40...14.50

Del.quantity cm³/

100 s: (23.4...24.2)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.4...5.8

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.00...1.50
2nd speed	rpm	: 617
	travel mm	: 5.00...5.50
3rd speed	rpm	: 780
	travel mm	: 6.10...6.60
4th speed	rpm	: 1009
	travel mm	: 8.30...8.80
5th speed	rpm	: 1092
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1200
 Del.quantity : 237.0...239.0
 1000 : (234.0...242.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 120...128

Testing:
 1st rack travel in: 13.30
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1080...1110
 4th rack travel in: 1200
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 82...90

Testing:
 Speed rpm : 200
 Minimum rack trave: 7.80
 Speed rpm : 300
 Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
 Speed rpm : 300...500

TORQUE CONTROL
 Dimension a mm : ?
 Torque control curve - 1st version
 1st speed rpm : 600
 Rack travel in m: 14.40...14.50
 2nd speed rpm : 950
 Rack travel in m: 14.20...14.40

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 1200
 Rack travel mm : 14.40...14.50

Measurement
 Speed 1/min : 400
 1st pressure hPa : 550
 Rack travel in m: 12.60...12.70
 2nd pressure hPa : 250

Rack travel in m: 9.80...10.00
 3rd pressure hPa : -
 Rack travel in m: 8.90...9.20

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 950
 Del.quantity cm³/ : 230.0...234.0
 1000 s: (227.0...237.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm³/ : 203.0...206.0
 1000 s: (200.0...209.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 132.0...134.0
 1000 s: (129.0...137.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.30
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 909

Injection pump
 Pump designation : PE8P120A320LS7&40-10
 EP type number : 0 412 628 856
 Governor
 Governor design. : RQ300/950PA971-6
 Governer no. : 0 421 801 575

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.40...13.60

Del.quantity cm³/

100 s: (20.4...21.2)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 7.0...7.4

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 207.0...209.0

1000 : (204.0...212.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 200

Minimum rack trave: 7.60

Speed rpm : 300

Rack travel in mm : 6.20...6.80

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 950

Rack travel in m: 13.50...13.70

3rd speed rpm : 800

Rack travel in m: 14.10...14.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 800

Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 600

1st pressure hPa : 345

Rack travel in m: 11.70...11.90

2nd pressure hPa : 600

Rack travel in m: 12.90...13.10

3rd pressure hPa : 1050

Rack travel in m: 13.60...13.70

4th pressure hPa : 1100

Rack travel in m: 13.90...14.10

5th pressure hPa : -

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 950

Del.quantity cm³/ : 208.5...211.5

1000 s: (205.5...214.5)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1500

Speed rpm : 800

Del.quantity cm³/ : 225.0...229.0

1000 s: (221.0...232.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 127.0...129.0

1000 s: (124.0...132.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

Speed rpm : 990...1005

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.10.93
 Replaces : 18.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 911

Injection pump
 Pump designation : PE8P120A320LS7839-10
 EP type number : 0 412 628 855
 Governor
 Governor design. : RQV300...1050PA797
 -27
 Governor no. : 0 421 813 916

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.10...15.30

Del.quantity cm³/ : 26.5...26.7
 100 s: (26.2...27.0)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.00...1.50
2nd speed	rpm	: 558
	travel mm	: 4.30...4.80
3rd speed	rpm	: 820
	travel mm	: 5.90...6.40
4th speed	rpm	: 1108
	travel mm	: 8.30...8.80
5th speed	rpm	: 1183
	travel mm	: 8.30...8.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1130
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h: 900
Del.quantity : 265.0...267.0
1000 : (262.0...270.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 15.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 76...84

Testing:

Speed rpm : 200
Minimum rack trave: 6.80
Speed rpm : 300
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 0.20
2nd speed rpm : 1050
Rack travel in m: 16.20...16.40
3rd speed rpm : 800
Rack travel in m: 16.40...16.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 900
Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 400
1st pressure hPa : 550
Rack travel in m: 12.90...13.00
2nd pressure hPa : 250

Rack travel in m: 10.10...10.30
3rd pressure hPa : 1300
Rack travel in m: 15.70...15.80 *
4th pressure hPa : 1100
Rack travel in m: 15.30...15.50 *
5th pressure hPa : -
Rack travel in m: 9.10...9.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 2000
Speed rpm : 1050
Del.quantity cm³/ : 271.0...274.0
1000 s: (268.0...277.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 2000
Speed rpm : 800
Del.quantity cm³/ : 283.0...287.0
1000 s: (280.0...290.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 15.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...295.0
1000 s: (271.0...299.0)

Remarks:
: * N = 700

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : 08.92
 Test oil : ISO-4113
 Combination no. : 0 402 648 914X
 Injection pump
 Pump designation : PE8P120A320LS7835-10
 EP type number : 0 412 628 853
 Governor
 Governor design. : RQV300...1050PA797
 -30
 Governor no. : 0 421 813 921
 Cust. part no. : 0180742202
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM402 A
 1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test Lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 Firing order : 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750

 Rack travel in mm : 14.60...14.80

 Del.quantity cm3/ : 23.0...23.2

 100 s: (22.7...23.5)

 Spread cm3 : 0.6

 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.5
 Del.quantity cm3/ : 1.6...2.2
 100 s: (1.3...2.5)

 Spread cm3 : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.50
 2nd speed rpm : 608
 travel mm : 4.80...5.30
 3rd speed rpm : 820
 travel mm : 5.90...6.40
 4th speed rpm : 1108
 travel mm : 8.10...8.60
 5th speed rpm : 1190
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION
 Control-lever position

Degree: -1
 Speed rpm : 1130
 Rack travel in mm : 12.60...15.20
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
 Speed rpm : 750
 Aneroid pressure h: 1200
 Del.quantity : 230.0...232.0
 1000 : (227.0...235.0)
 Spread cm³ : 6.00
 1000 : (9.00)
RATED SPEED
1st version
 Control lever position degrees: 118...126
Testing:
 1st rack travel in: 13.00
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1170...1200
 4th rack travel in: 1300
 Speed rpm : 0.00...1.40
LOW IDLE 1
 Control lever position degrees: 82...90
Testing:
 Speed rpm : 200
 Minimum rack trave: 7.30
 Speed rpm : 300
 Rack travel in mm : 6.10...6.30
CONSTANT REGULATION
 Speed rpm : 300...500
TORQUE CONTROL
 Dimension a mm : 0.60
 2nd speed rpm : 1050
 Rack travel in m: 13.90...14.10
 3rd speed rpm : 800
 Rack travel in m: 14.60...14.80
Aneroid/Altitude Compensator Test
1st version
Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel mm : 10.30...10.60
Measurement
 Speed 1/min : 500

1st pressure hPa : 250
 Rack travel in m: 11.20...11.30
 2nd pressure hPa : 600
 Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm³/ : 213.5...217.5
 1000 s: (210.5...220.5)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm³/ : 188.5...191.5
 1000 s: (185.5...194.5)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 131.0...133.0
 1000 s: (128.0...136.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.00
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 200.0...230.0
 1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet	: MB
Edition	: 27.10.93
Replaces	: 26.02.93
Test oil	: ISO-4113
Combination no.	: 0 402 648 915X
Injection pump	
Pump designation	: PE8P120A320LS7835-10
EP type number	: 0 412 628 853
Governor	
Governor design.	: RQ300/1050PA993-1
Governor no.	: 0 421 801 582
Cust. part no.	: 0200747202
Customer-spec. information	
Customer	: MERCEDES-BENZ
Engine	: OM402 LA
1st version kW	: 280.0
Rated speed	: 2100
TEST BENCH REQUIREMENTS	
Test oil	
inlet temp. °C	: 38...42
Overflow valve	
	: 1 417 413 025
Inlet press., bar	: 1.50
Overflow	
quantity min. 1/h:	: 100...120
Test nozzle holder	
assembly	: 1 688 901 105
Opening	
pressure, bar	: 207...210
Orifice plate	
diameter mm	: 0,8
Test Lines	: 1 680 750 075
Outside diameter	
x Wall thickness	
x Length mm	: 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.50...5.60
	: (5.45...5.65)
Rack travel in mm	: 20.00...21.00
Firing order	: 8- 7- 2- 6- 3- 5- 4- 1

Phasing	: 0-45-90-135-180-225- 270-315
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Tolerance + - *	: 0.50 (0.75)
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Time to cyl. no. : 8

BASIC SETTING

1st speed	rpm : 750
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Rack travel in mm	: 14.65...14.75
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Del.quantity cm ³ /	: 23.0...23.2
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100 s:	(22.7...23.5)
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Spread	cm ³ : 0.6
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100 s:	(0.9)
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2nd speed	rpm : 300.0
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Rack travel in mm	: 5.9...6.5
-------------------	-------------

Del.quantity cm ³ /	: 1.6...2.2
--------------------------------	-------------

100 s:	(1.3...2.5)
--------	-------------

Spread	cm ³ : 0.6
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100 s:	(1.0)
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GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed	rpm : 600
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Rack travel in mm	: 19.20...20.80
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FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm : 750
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Aneroid pressure h:	1200
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Del.quantity	: 230.0...232.0
--------------	-----------------

1000	: (227.0...235.0)
------	-------------------

Spread	cm ³ : 6.00
--------	------------------------

1000	: (9.00)
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RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.10...6.30
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.70
2nd speed rpm : 1050
Rack travel in m: 13.90...14.10
3rd speed rpm : 800
Rack travel in m: 14.60...14.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 750
Pressure hPa : 1200
Rack travel mm : 14.65...14.75

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: ?
2nd pressure hPa : 250
Rack travel in m: 11.15...11.35
3rd pressure hPa : -
Rack travel in m: 10.10...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/ : 213.5...217.5
1000 s: (210.5...220.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 188.5...191.5
1000 s: (185.5...194.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...230.0
1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 e2
 Edition : 08.10.91
 Replaces : 06.91
 Test oil : ISO-4113

Combination no. : 0 402 648 916A

Injection pump
 Pump designation : PE8P120A520LS7818-1
 EP type number : 0 412 628 857
 Governor
 Governor design. : RQV250...1150PA902
 Governer no. : 0 421 813 720

Cust. part no. : 3-7007

Customer-spec. information
 Customer : MAN

Engine : D2848LXE 40

1st version kW : 500.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 25.9...26.1

100 s: (25.6...26.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 500
 Rack travel in mm : 8.9...9.1
 Del.quantity cm³/ : 14.9...15.1
 100 s: (14.6...15.4)

Spread cm³ : 0.5
 100 s: (0.9)

3rd speed rpm : 250
 Rack travel in mm : 7.30...7.50
 Del.quantity cm³/ : 5.2...6.0 *

100 s: (-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
	travel mm	: 1.40...1.60
2nd speed	rpm	: 450
	travel mm	: 3.40...4.00
3rd speed	rpm	: 850
	travel mm	: 6.30...6.90
4th speed	rpm	: 1150
	travel mm	: 9.40...9.60
5th speed	rpm	: 1450
	travel mm	: 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1210

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1300
Del.quantity : 259.0...261.0
1000 : (256.0...264.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 11.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88

Testing:

Speed rpm : 100
Minimum rack trave: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 430...490

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 100

Rack travel in m: 9.30...9.40

3rd pressure hPa : 470

Rack travel in m: 12.30...12.60

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 149.0...151.0
1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0 *
1000 s: (-)

Speed rpm : 100
Del.quantity cm³/ : 0 **
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 500
Rack travel in mm : 0.00...7.00
Del.quantity cm³/ : 0 **
1000 s: (-)

2nd version

Speed rpm : 500
Rack travel in mm : 0.00...7.50
Del.quantity cm³/ : < 50.0 **
1000 s: (-)

3rd version

Speed rpm : 500
Rack travel in mm : 8.30...8.50
Del.quantity cm³/ : 125.0...**
1000 s: (-)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 7.30...7.50
Del.quantity cm³/ : 52.0...60.0 *
1000 s: (-)

Remarks:

* applies to cylinders 2, 3, 4 and 8
** applies for cylinders 1, 5, 6, and 7

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.10.93
 Replaces : 18.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 917

Injection pump
 Pump designation : PE8P120A320LS7839-10
 EP type number : 0 412 628 855
 Governor
 Governor design. : RQ300/1050PA993-3
 Governer no. : 0 421 801 601

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.10...15.30

Del.quantity cm³/ : 26.5...26.7
 100 s: (26.2...27.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 900
 Del.quantity : 265.0...267.0
 1000 : (262.0...270.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.30
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack trave: 7.20
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 16.20...16.40
3rd speed rpm : 800
Rack travel in m: 16.40...16.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 900
Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.90...13.00
2nd pressure hPa : 250
Rack travel in m: 10.10...10.30
3rd pressure hPa : 1100
Rack travel in m: 15.30...15.50 *

4th pressure hPa : 1300
Rack travel in m: 15.70...15.80 *
5th pressure hPa : -
Rack travel in m: 9.10...9.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 2000
Speed rpm : 1050
Del.quantity cm3/ : 271.0...274.0
1000 s: (268.0...277.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 2000
Speed rpm : 800
Del.quantity cm3/ : 283.0...287.0
1000 s: (280.0...290.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 15.30
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 275.0...295.0
1000 s: (271.0...299.0)

Remarks:

: * N = 700

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.10.93
 Replaces : 03.12.92
 Test oil : ISO-4113

 Combination no. : 0 402 648 918X

 Injection pump
 Pump designation : PE8P120A320LS7838-10
 EP type number : 0 412 628 354
 Governor
 Governor design. : RQ300/1050PA993-4
 Governor no. : 0 421 801 602

 Cust. part no. : 021074102

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM442 LA

 1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 105

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 075

 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ : 23.7...23.9

100 s: (23.4...24.2)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.2...6.8
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 1020
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1200
 Del.quantity : 237.0...239.0
 1000 : (234.0...242.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 1020
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.30
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.40...6.60

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 14.40...14.50
2nd speed rpm : 1050
Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 14.40...14.50

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.55...12.65
2nd pressure hPa : 250
Rack travel in m: 9.80...10.00
3rd pressure hPa : -
Rack travel in m: 8.90...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 222.0...226.0
1000 s: (219.0...229.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...134.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1090...1106

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 18.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 921

Injection pump
 Pump designation : PE8P120A320LS7839-10
 EP type number : 0 412 628 855
 Governor
 Governor design. : RQ300/950PA993-8
 Governor no. : 0 421 801 618

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.10...15.30

Del.quantity cm³/ : 26.5...26.7
 100 s: (26.2...27.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.6
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 900
 Del.quantity : 265.0...267.0
 1000 : (262.0...270.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.50
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 550
Pressure hPa : 900
Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.90...13.10
2nd pressure hPa : 250
Rack travel in m: 10.10...10.30
3rd pressure hPa : 1100
Rack travel in m: 15.30...15.50 ★
4th pressure hPa : 1300
Rack travel in m: 15.70...15.80 ★
5th pressure hPa : -
Rack travel in m: 9.00...9.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 2000
Speed rpm : 950
Del.quantity cm3/ : 281.0...284.0
1000 s: (278.0...287.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 700
Del.quantity cm3/ : 271.5...274.5
1000 s: (288.5...277.5)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 205.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 15.50
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)

Remarks:

: ★ N = 700

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.10.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 928

Injection pump
 Pump designation : PE8P120A320LS7847-1
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQ300/1050PA1030
 Governor no. : 0 421 801 640

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.8
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 236.0...238.0
 1000 : (233.0...241.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.80
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:
Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.50...13.60
2nd speed rpm : 1050
Rack travel in m: 12.80...13.00
3rd speed rpm : 950
Rack travel in m: 12.95...13.15
4th speed rpm : 775
Rack travel in m: 13.45...13.65

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement
Speed 1/min : 400

1st pressure hPa : 650
Rack travel in m: 12.90...13.00
2nd pressure hPa : 300
Rack travel in m: 11.35...11.55
3rd pressure hPa : -
Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 210.0...214.0
1000 s: (207.0...217.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 650
Speed rpm : 400
Del.quantity cm3/ : 196.5...199.5
1000 s: (193.5...202.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 45.0...65.0
1000 s: (41.0...69.0)
Rack travel in mm : 10.50...10.70

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 21.09.92
 Replaces : 08.92
 Test oil : ISO-4113

 Combination no. : 0 402 648 929

 Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQV300...950PA1033-1
 Governor no. : 0 421 813 991

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM402 LA

 1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 1 688 901 105

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test Lines : 1 680 750 075

 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 : 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.8
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.8
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.10...1.50
2nd speed	rpm	: 567
	travel mm	: 4.40...5.00
3rd speed	rpm	: 780
	travel mm	: 6.00...6.60
4th speed	rpm	: 1010
	travel mm	: 8.50...8.70
5th speed	rpm	: 1190
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1
 Speed rpm : 1080
 Rack travel in mm : 10.70...13.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700

Aneroid pressure h: 1200
Del.quantity : 233.0...235.0
1000 : (230.0...238.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 12.00
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1080...1110
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 82...90

Testing:
Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 12.90...13.10
2nd speed rpm : 825
Rack travel in m: 13.20...13.40
3rd speed rpm : 700
Rack travel in m: 13.50...13.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.70

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.10...11.20
2nd pressure hPa : 650
Rack travel in m: 12.60...12.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm³/ : 214.0...218.0
1000 s: (211.0...221.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...290.0
1000 s: (246.0...294.0)
Rack travel in mm : 10.50...10.70

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 26.02.93
 Test oil : ISO-4113

Combination no. : 0 402 648 930

Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 853
 Governor
 Governor design. : RQ300/1050PA1031-2
 Governor no. : 0 421 801 645

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 23.6...23.8
 100 s: (23.3...24.1)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.8
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 236.0...238.0
 1000 : (233.0...241.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.80
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.50...13.60
2nd speed rpm : 1050
Rack travel in m: 12.80...13.00
3rd speed rpm : 950
Rack travel in m: 12.95...13.15
4th speed rpm : 775
Rack travel in m: 13.45...13.65

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 400

1st pressure hPa : 650
Rack travel in m: 12.90...13.00
2nd pressure hPa : 300
Rack travel in m: 11.35...11.55
3rd pressure hPa : -
Rack travel in m: 10.30...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 210.0...214.0
1000 s: (207.0...217.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 650
Speed rpm : 400
Del.quantity cm3/ : 196.5...199.5
1000 s: (193.5...202.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 250.0...290.0
1000 s: (246.0...294.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 08.92
 Test oil : ISO-4113

Combination no. : 0 402 648 931

Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQ300/950PA1032-1
 Governor no. : 0 421 801 646

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1200

Del.quantity : 236.0...238.0

1000 : (233.0...241.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 360...400

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.50...13.60
2nd speed rpm : 950
Rack travel in m: 13.00...13.20
3rd speed rpm : 800
Rack travel in m: 13.50...13.60
4th speed rpm : 875
Rack travel in m: 13.25...13.45

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement
Speed 1/min : 400

1st pressure hPa : 650
Rack travel in m: 12.90...13.00
2nd pressure hPa : 300
Rack travel in m: 11.35...11.55
3rd pressure hPa : -
Rack travel in m: 10.45...10.75

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm3/ : 214.0...218.0
1000 s: (211.0...221.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 650
Speed rpm : 400
Del.quantity cm3/ : 196.5...199.5
1000 s: (193.5...202.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 45.0...65.0
1000 s: (41.0...69.0)
Rack travel in mm : 10.50...10.70

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 27.11.92
 Test oil : ISO-4113

Combination no. : 0 402 648 933

Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQ300/950PA1031-3
 Governer no. : 0 421 801 646

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 23.6...23.8
 100 s: (23.0...23.8)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.8
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 236.0...238.0
 1000 : (233.0...241.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.90
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.50...13.60
2nd speed rpm : 950
Rack travel in m: 13.00...13.20
3rd speed rpm : 800
Rack travel in m: 13.50...13.60
4th speed rpm : 875
Rack travel in m: 13.25...13.45

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 400

1st pressure hPa : 650
Rack travel in m: 12.90...13.00
2nd pressure hPa : 300
Rack travel in m: 11.35...11.55
3rd pressure hPa : -
Rack travel in m: 10.45...10.75

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm3/ : 214.0...218.0
1000 s: (211.0...221.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 650
Speed rpm : 400
Del.quantity cm3/ : 196.5...199.5
1000 s: (193.5...202.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 23.10.92
 Replaces : 07.92
 Test oil : ISO-4113

Combination no. : 0 402 648 934

Injection pump
 Pump designation : PE8P120A320LS7823
 EP type number : 0 412 628 835
 Governor
 Governor design. : RQV350...1050PA866-
 -21
 Governor no. : 0 421 813 996

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. l/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.4...23.7

100 s: (23.1...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.0...5.6

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.40...1.60

2nd speed rpm : 800

travel mm : 4.70...5.10

3rd speed rpm : 1100

travel mm : 7.60...8.20

4th speed rpm : 1175

travel mm : 9.20...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 234.0...237.0
 1000 : (231.0...240.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 115...123

Testing:
 1st rack travel in: 13.40
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1170...1200
 4th rack travel in: 1300
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 62...70

Testing:
 Speed rpm : 250
 Minimum rack trave: 7.10
 Speed rpm : 350
 Rack travel in mm : 5.00...5.60

CONSTANT REGULATION
 Speed rpm : 350...550

TORQUE CONTROL
 Dimension a mm : 0.50
 2nd speed rpm : 1050
 Rack travel in m: 14.40...14.60
 3rd speed rpm : 800
 Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 900
 Rack travel mm : 13.60...13.80

Measurement
 Speed 1/min : 600
 1st pressure hPa : 350
 Rack travel in m: 11.10...11.30
 2nd pressure hPa : 500
 Rack travel in m: 12.80...13.00
 3rd pressure hPa : 1050

Rack travel in m: 13.70...13.90 *
 4th pressure hPa : 1250
 Rack travel in m: 14.50...14.70
 5th pressure hPa : -
 Rack travel in m: 10.10...10.40

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1600
 Speed rpm : 1050
 Del.quantity cm³/ : 252.0...256.0
 1000 s: (249.0...259.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1600
 Speed rpm : 800
 Del.quantity cm³/ : 270.0...274.0
 1000 s: (267.0...277.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1600
 Speed rpm : 1050
 Del.quantity cm³/ : 184.0...187.0**
 1000 s: (181.0...190.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 149.0...151.0
 1000 s: (146.0...154.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.40
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 240.0...260.0
 1000 s: (236.0...264.0)

Remarks:

:
 ** = Set at reduced-delivery stop.

* Increase in control-rod travel with respect to setting at least 0.1 mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 11.01.93
 Test oil : ISO-4113

Combination no. : 0 402 648 940

Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQ300/950PA1032-4
 Governer no. : 0 421 801 661

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2-6-3-5-
 4-1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.20...13.30

Del.quantity cm³/

100 s: (22.2...23.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm³/

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1200

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00

Speed rpm : 990...1006

2nd rack travel in: 4.00

Speed rpm : 1065...1095

4th rack travel in: 1350

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.5

Testing:

Speed rpm : 200

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 5.40...5.60

Rack travel in mm : 2.00

Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.35

Torque control curve - 1st version

1st speed rpm : 550

Rack travel in m: 13.20...13.30

2nd speed rpm : 950

Rack travel in m: 13.00...13.20

3rd speed rpm : 825

Rack travel in m: 13.20...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 400

Pressure hPa : 1200

Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 400

1st pressure hPa : 650

Rack travel in m: 12.90...13.00

2nd pressure hPa : 300

Rack travel in m: 11.35...11.55

3rd pressure hPa : -

Rack travel in m: 10.45...10.75

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 950

Del.quantity cm³/ s: 214.0...218.0
1000 s: (211.0...221.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 650

Speed rpm : 400

Del.quantity cm³/ s: 196.5...199.5
1000 s: (193.5...202.5)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ s: 134.0...136.0
1000 s: (131.0...139.0)

Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ s: 45.0...75.0
1000 s: (41.0...79.0)

Rack travel in mm : 10.40...10.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 11.01.93
 Test oil : ISO-4113

Combination no. : 0 402 648 941

Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : PQV300...950PA1033-7
 Governor no. : 0 421 814 019

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 95...115

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.10...1.50
 2nd speed rpm : 567
 travel mm : 4.40...5.00
 3rd speed rpm : 780
 travel mm : 6.00...6.60
 4th speed rpm : 1010
 travel mm : 8.40...8.70
 5th speed rpm : 1190
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 10.70...13.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 225.0...227.0
 1000 : (222.0...230.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 117...125

Testing:
 1st rack travel in: 12.00
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1065...1095
 4th rack travel in: 1350
 Speed rpm : 0.00...1.50

LOW IDLE 1
 Control lever
 position degrees: 82...90

Testing:
 Speed rpm : 200
 Minimum rack trav: 9.00
 Speed rpm : 300
 Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
 Speed rpm : 300...390

TORQUE CONTROL
 Dimension a mm : 0.20
 Torque control curve - 1st version
 1st speed rpm : 550
 Rack travel in m: 13.20...13.30
 2nd speed rpm : 950
 Rack travel in m: 13.00...13.20
 3rd speed rpm : 825
 Rack travel in m: 13.20...13.30

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 400
 Pressure hPa : 1200
 Rack travel mm : 13.20...13.30

Measurement
 Speed 1/min : 400

1st pressure hPa : 650

Rack travel in m: 12.90...13.00
 2nd pressure hPa : 300
 Rack travel in m: 11.35...11.55
 3rd pressure hPa : -
 Rack travel in m: 10.45...10.75

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 950
 Del.quantity cm³/ : 214.0...218.0
 1000 s: (211.0...221.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 650
 Speed rpm : 400
 Del.quantity cm³/ : 196.5...199.5
 1000 s: (193.5...202.5)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 134.0...136.0
 1000 s: (131.0...139.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 12.00
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 275.0...295.0
 1000 s: (271.0...299.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 28.10.93
Replaces : 11.01.93
Test oil : ISO-4113

Combination no. : 0 402 648 942

Injection pump
Pump designation : PE8P120A320LS7847
EP type number : C 412 628 863
Governor
Governor design. : RQ300/950PA1031-6
Governor no. : 0 421 801 662

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
: (5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.20...13.30

Del.quantity cm³/

100 s: (22.2...23.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm³/

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1200

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00

Speed rpm : 990...1006

2nd rack travel in: 4.00

Speed rpm : 1065...1095

4th rack travel in: 1350

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.5

Testing:

Speed rpm : 200

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 5.40...5.60

Rack travel in mm : 2.00

Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.35

Torque control curve - 1st version

1st speed rpm : 950

Rack travel in m: 13.00...13.10

2nd speed rpm : 825

Rack travel in m: 13.20...13.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 1200

Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 400

1st pressure hPa : 650

Rack travel in m: 12.90...13.00

2nd pressure hPa : 300

Rack travel in m: 11.35...11.55

3rd pressure hPa : -

Rack travel in m: 10.45...10.75

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 950

Del.quantity cm³/ : 214.0...218.0

1000 s: (211.0...221.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 650

Speed rpm : 400

Del.quantity cm³/ : 196.5...199.5

1000 s: (193.5...202.5)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 134.0...136.0

1000 s: (131.0...139.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 260.0...280.0

1000 s: (256.0...284.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 11.01.93
 Test oil : ISO-4113

Combination no. : 0 402 648 945

Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQ300/1050PA1030-6
 Governor no. : 0 421 801 666

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 683 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 22.5...22.7
 100 s: (22.2...23.0)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.8
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
 Aneroid pressure h: 1200
 Del.quantity : 225.0...227.0
 1000 : (222.0...230.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.60

Speed rpm : 1090...1106

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1300

Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.5

Testing:

Speed rpm : 200

Minimum rack trave: 7.30

Speed rpm : 300

Rack travel in mm: 5.40...5.60

Rack travel in mm : 2.00

Speed rpm : 355...395

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 550

Rack travel in m: 13.20...13.30

2nd speed rpm : 1050

Rack travel in m: 12.80...13.00

3rd speed rpm : 950

Rack travel in m: 12.95...13.15

4th speed rpm : 800

Rack travel in m: 13.20...13.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 400

Pressure hPa : 1200

Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 400

1st pressure hPa : 650

Rack travel in m: 12.90...13.00

2nd pressure hPa : 300

Rack travel in m: 11.35...11.55

3rd pressure hPa : -

Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 1050
Del.quantity cm³/ : 210.0...214.0
1000 s: (207.0...217.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 650
Speed rpm : 400
Del.quantity cm³/ : 196.5...199.5
1000 s: (193.5...202.5)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 45.0...75.0
1000 s: (41.0...79.0)
Rack travel in mm : 9.90...10.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 11.01.93
 Test oil : ISO-4113

Combination no. : 0 402 648 946

Injection pump
 Pump designation : PE8P120A320LS7847
 EP type number : 0 412 628 863
 Governor
 Governor design. : RQ300/1050PA1031-7
 Governor no. : 0 421 801 667

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 628 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1200

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.40
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.20...13.30
2nd speed rpm : 1050
Rack travel in m: 12.80...13.00
3rd speed rpm : 950
Rack travel in m: 12.95...13.15
4th speed rpm : 800
Rack travel in m: 13.00...13.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 400
Pressure hPa : 1200
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 400

1st pressure hPa : 650
Rack travel in m: 12.90...13.00
2nd pressure hPa : 300
Rack travel in m: 11.35...11.55
3rd pressure hPa : -
Rack travel in m: 10.03...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 210.0...214.0
1000 s: (207.0...217.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 650
Speed rpm : 400
Del.quantity cm3/ : 196.5...199.5
1000 s: (193.5...202.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 275.0...295.0
1000 s: (271.0...299.0)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 21.10.1993
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 0 402 648 947

Injection pump
 Pump designation : PE8P120A320LS7859
 EP type number : 0 412 528 869
 Governor
 Governor design. : RQ300/950PA1032-5
 Governor no. : 0 421 801 668

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1000

Del.quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.65

Speed rpm : 990...1006

2nd rack travel in: 4.00

Speed rpm : 1065...1095

4th rack travel in: 1200

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.20

Testing:

Speed rpm : 200

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 5.10...5.30

Rack travel in mm : 2.00

Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 1000

Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 400

1st pressure hPa : 550

Rack travel in m: 12.50...12.60

2nd pressure hPa : 250

Rack travel in m: 10.40...10.60

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 950

Del.quantity cm³/ : 230.0...234.0

1000 s: (228.0...236.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 550

Speed rpm : 400

Del.quantity cm³/ : 203.0...206.0

1000 s: (200.0...209.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.65

Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 65.0...95.0.0

1000 s: (61.0...99.0)

Rack travel in mm : 9.40...9.80

Remarks:

: ★ N = 400 1/MIN

: ★ N = 500 1/MIN

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 28.10.93
 Replaces : 27.11.92
 Test oil : ISO-4113

Combination no. : 0 402 648 948

Injection pump
 Pump designation : PE8P120A320LS7859
 EP type number : 0 412 628 869
 Governor
 Governor design. : RQ300/1050PA1030-7
 Governer no. : 0 421 801 669

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1000

Del.quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.60...16.70
2nd speed rpm : 1050
Rack travel in m: 13.30...13.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 1000
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.50...12.60
2nd pressure hPa : 250
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.40...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm3/ : 222.0...226.0
1000 s: (219.0...229.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 65.0...95.0
1000 s: (61.0...99.0)
Rack travel in mm : 9.40...9.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 24.9.1993
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 949

Injection pump
 Pump designation : PE8P120A320LS7883
 EP type number : 0 412 628 874
 Governor
 Governor design. : RQV300...950PA1050K
 Governor no. : 0 421 815 333

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 14.00...15.00
 Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-
 : 270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 8

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.90...6.10
 & maximum rack tra: 14.0...15.0
 Difference * CS : 3.75...5.25

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ : 26.8...27.0
 100 s: (26.5...27.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300
 Rack travel in mm : 5.5...6.1
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.53...1.73
2nd speed	rpm	: 520
	travel mm	: 3.55...4.05
3rd speed	rpm	: 810
	travel mm	: 5.15...5.65
4th speed	rpm	: 1006
	travel mm	: 7.40...7.60
5th speed	rpm	: 1280
	travel mm	: 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1160
 Rack travel in mm : 12.20...14.70

FULL LOAD DELIV. AT FULL LOAD STOP

 1st version
 Speed rpm : 950
 Aneroid pressure h: 1200
 Del.quantity : 268.0...270.0
 1000 : (265.0...273.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

 1st version
 Control lever
 position degrees: 109...117

 Testing:
 1st rack travel in: 13.40
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1080...1100
 4th rack travel in: 1250
 Speed rpm : 0.00...1.50

LOW IDLE 1
 Control lever
 position degrees: 70...78

 Testing:
 Speed rpm : 200
 Minimum rack trave: 7.80
 Speed rpm : 300
 Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
 Speed rpm : 300...500

TORQUE CONTROL
 Dimension a mm : ?
 Torque control curve - 1st version
 1st speed rpm : 950
 Rack travel in m: 14.40...14.50
 2nd speed rpm : 750
 Rack travel in m: 14.15...14.25
 3rd speed rpm : 700
 Rack travel in m: 13.80...14.00
 4th speed rpm : 650
 Rack travel in m: 13.60...13.80
 5th speed rpm : 550
 Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 850
 Pressure hPa : 1200
 Rack travel mm : 14.50...14.70

Measurement
 Speed 1/min : 400

 1st pressure hPa : 550
 Rack travel in m: 12.35...12.45
 2nd pressure hPa : 150
 Rack travel in m: 12.60...12.80
 3rd pressure hPa : --
 Rack travel in m: 7.80...8.10

START CUT-OUT
 Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

 1st version
 Aneroid pressure h: 1200
 Speed rpm : 550
 Del.quantity cm³/ : 253.0...259.0
 1000 s: (250.0...262.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 132.0...134.0
 1000 s: (129.0...137.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

 1st version,
 1mm rack travel less than
 full load rack tr: 13.40
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

 Speed rpm : 100
 Del.quantity cm³/ : 120.0...140.0
 1000 s: (116.0...144.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 28.10.93
Replaces : 18.12.92
Test oil : ISO-4113

Combination no. : 0 402 648 953

Injection pump
Pump designation : PE8P120A320LS7859
EP type number : 0 412 628 869
Governor
Governor design. : RQV300...950PA1033
-10
Governor no. : 0 421 814 040

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.00...1.50
2nd speed	rpm	: 567
	travel mm	: 4.40...4.90
3rd speed	rpm	: 617
	travel mm	: 5.00...5.50
4th speed	rpm	: 780
	travel mm	: 6.10...6.60
5th speed	rpm	: 1009
	travel mm	: 8.40...8.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 11.30...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h: 1000
Del.quantity : 241.0...243.0
1000 : (238.0...246.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 117...125

Testing:

1st rack travel in: 12.65
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 380...420

CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 1000
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.50...12.60
2nd pressure hPa : 250
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.40...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm³/ : 230.0...234.0
1000 s: (227.0...237.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.65
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 29.10.93
 Replaces : 3.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 954

Injection pump
 Pump designation : PE8P120A320LS7859
 EP type number : 0 412 628 869
 Governor
 Governor design. : RQ300/1050PA1031-8
 Governor no. : 0 421 801 674

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1000

Del.quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40
Speed rpm : 1090...1106
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.40
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 13.60...16.70
2nd speed rpm : 1050
Rack travel in m: 13.30...13.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 1000
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.50...12.60
2nd pressure hPa : 250
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.40...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm3/ : 222.0...226.0
1000 s: (219.0...229.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 29.10.93
 Replaces : 18.12.92
 Test oil : ISO-4113

Combination no. : 0 402 648 955

Injection pump
 Pump designation : PE8P120A320LS7859
 EP type number : 0 412 628 869
 Governor
 Governor design. : RQ300/950PA1031-9
 Governor no. : 0 421 801 675

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.60...13.70

Del.quantity cm³/

100 s: (23.8...24.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.5

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1000

Del.quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.65
Speed rpm : 990...1006
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:
Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.60...13.70

Measurement
Speed 1/min : 400

1st pressure hPa : 550
Rack travel in m: 12.50...12.60
2nd pressure hPa : 250
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.40...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm3/ : 230.0...234.0
1000 s: (227.0...237.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm3/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.65
Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 29.10.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 956

Injection pump
 Pump designation : PE8P120A320LS7863
 EP type number : 0 412 628 874
 Governor
 Governor design. : RGV300...1050PA1050-1K
 Governor no. : 0 421 815 339

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 14.00...15.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 25.7...25.9

100 s: (25.4...26.2)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.50...6.10

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.75...1.95
2nd speed	rpm	: 347
	travel mm	: 2.47...2.97
3rd speed	rpm	: 397
	travel mm	: 3.01...3.51
4th speed	rpm	: 850
	travel mm	: 5.35...5.85
5th speed	rpm	: 1106
	travel mm	: 8.86...9.06

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 11.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1200
Del.quantity : 257.0...259.0
1000 : (254.0...262.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 115...123

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 71...79

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 310...490

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.00...14.10
2nd speed rpm : 950
Rack travel in m: 14.35...14.55
3rd speed rpm : 750
Rack travel in m: 14.15...14.25
4th speed rpm : 650
Rack travel in m: 13.60...13.80
5th speed rpm : 550
Rack travel in m: 13.35...13.65

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 850
Pressure hPa : 1200
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 400
1st pressure hPa : 550
Rack travel in m: 12.35...12.45
2nd pressure hPa : 150
Rack travel in m: 8.80...9.00
3rd pressure hPa : -
Rack travel in m: 7.80...8.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 260.0...264.0
1000 s: (257.0...267.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 550
Del.quantity cm³/ : 253.0...259.0
1000 s: (250.0...262.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...140.0
1000 s: (116.0...144.0)
Rack travel in mm : 11.20...12.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 29.10.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 957

Injection pump
 Pump designation : PE8P120A320LS7863
 EP type number : 0 412 628 874
 Governor
 Governor design. : RQV300...950PA1056K
 Governor no. : 0 421 815 340

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 14.00...15.00
 Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ 100 s: 26.8...27.0
 100 s: (26.5...27.3)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.50...6.10
 Del.quantity cm³/ 100 s: 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.53...1.73
2nd speed	rpm	: 361
travel mm		: 2.56...3.06
3rd speed	rpm	: 411
travel mm		: 3.16...3.66
4th speed	rpm	: 810
travel mm		: 5.14...5.64
5th speed	rpm	: 1006
travel mm		: 7.40...7.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1180
 Rack travel in mm : 12.30...14.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 950
 Aneroid pressure h: 1200
 Del.quantity : 268.0...270.0
 1000 : (265.0...273.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 107...115

Testing:

1st rack travel in: 13.40
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1090...1120
 4th rack travel in: 1250
 Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
 position degrees: 70...78

Testing:

Speed rpm : 200
 Minimum rack trave: 7.80
 Speed rpm : 300
 Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?
 Torque control curve - 1st version
 1st speed rpm : 950
 Rack travel in m: 14.40...14.50
 2nd speed rpm : 850
 Rack travel in m: 14.50...14.70
 3rd speed rpm : 750
 Rack travel in m: 14.15...14.25
 4th speed rpm : 650
 Rack travel in m: 13.60...13.80
 5th speed rpm : 550
 Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 850
 Pressure hPa : 1200
 Rack travel mm : 14.60...14.80

Measurement
 Speed 1/min : 400
 1st pressure hPa : 550
 Rack travel in m: 12.35...12.45
 2nd pressure hPa : 150
 Rack travel in m: 8.80...9.00
 3rd pressure hPa : -
 Rack travel in m: 7.80...8.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 750
 Del.quantity cm³/ : 260.0...264.0
 1000 s: (257.0...267.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1200
 Speed rpm : 550
 Del.quantity cm³/ : 253.0...259.0
 1000 s: (250.0...262.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 550
 Speed rpm : 400
 Del.quantity cm³/ : 203.0...206.0
 1000 s: (200.0...209.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 132.0...134.0
 1000 s: (129.0...137.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.40
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 120.0...140.0
 1000 s: (116.0...144.0)
 Rack travel in mm : 11.20...12.00

Remarks:
 :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 29.10.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 958

Injection pump
 Pump designation : PE8P120A320LS7863
 EP type number : 0 412 628 874
 Governor
 Governor design. : RQV300...1050PA1056-
 1K
 Governor no. : 0 421 815 339

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA
 1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 14.00...15.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 25.7...25.9

100 s: (25.4...26.2)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.50...6.10

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.75...1.95
2nd speed	rpm	: 347
	travel mm	: 2.47...2.97
3rd speed	rpm	: 397
	travel mm	: 3.01...3.51
4th speed	rpm	: 850
	travel mm	: 5.35...5.85
5th speed	rpm	: 1106
	travel mm	: 8.86...9.06

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 11.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1200
Del.quantity : 257.0...259.0
1000 : (254.0...262.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 115...123

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 71...79

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.00...14.10
2nd speed rpm : 950
Rack travel in m: 14.35...14.55
3rd speed rpm : 750
Rack travel in m: 14.15...14.25
4th speed rpm : 650
Rack travel in m: 13.60...13.80
5th speed rpm : 550
Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 850
Pressure hPa : 1200
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 400
1st pressure hPa : 550
Rack travel in m: 12.35...12.45
2nd pressure hPa : 150
Rack travel in m: 8.80...9.00
3rd pressure hPa : -
Rack travel in m: 7.80...8.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 260.0...264.0
1000 s: (257.0...267.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 550
Del.quantity cm³/ : 253.0...259.0
1000 s: (250.0...262.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 550
Speed rpm : 400
Del.quantity cm³/ : 203.0...206.0
1000 s: (200.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...140.0
1000 s: (116.0...144.0)
Rack travel in mm : 11.20...12.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 649 801

Injection pump
 Pump designation : PE10P120A320LS7809
 -11
 EP type number : 0 412 629 807
 Governor
 Governor design. : RQ300/1050PA717-1
 Governor no. : 0 421 801 396

Customer-spec. information
 Customer : DAIMLER-BENZ
 Engine : OM443 LA
 1st version kW : 401.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 130...150
 Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm³/ : 21.9...22.1
 100 s: (21.6...22.4)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 219.0...221.0
 1000 : (216.0...224.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.20
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack trave: 8.30
Speed rpm : 300
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 15.20...15.40
3rd speed rpm : 800
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.10...12.30
2nd pressure hPa : 600
Rack travel in m: 13.60...13.80
3rd pressure hPa : 960
Rack travel in m: 14.80...14.90 *
4th pressure hPa : 1100
Rack travel in m: 15.20...15.40
5th pressure hPa : -
Rack travel in m: 11.20...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm³/ : 229.0...232.0
1000 s: (226.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 800
Del.quantity cm³/ : 234.0...238.0
1000 s: (231.0...241.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm³ : 8.00
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.20
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 649 803

Injection pump
 Pump designation : PE10P120A320LS7809
 -11
 EP type number : 0 412 629 807
 Governor
 Governor design. : RAV300...1050PA797-4
 Governor no. : 0 421 813 654

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM443 LA
 1st version kW : 401.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm³/ : 21.9...22.1

100 s: (21.6...22.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.20...1.40
2nd speed	rpm	: 600
	travel mm	: 4.90...5.10
3rd speed	rpm	: 800
	travel mm	: 5.80...6.10
4th speed	rpm	: 1075
	travel mm	: 7.40...7.70
5th speed	rpm	: 1150
	travel mm	: 8.00...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 219.0...221.0
1000 : (216.0...224.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 124...116

Testing:

1st rack travel in: 14.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 81...89

Testing:

Speed rpm : 200
Minimum rack trav: 8.60
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 15.10...15.30
3rd speed rpm : 800
Rack travel in m: 15.50...15.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.10...12.30
2nd pressure hPa : 600

Rack travel in m: 13.60...13.80
3rd pressure hPa : 960
Rack travel in m: 14.80...14.90 *
4th pressure hPa : 1100
Rack travel in m: 15.20...15.40
5th pressure hPa : -
Rack travel in m: 11.20...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm³/ : 229.0...232.0
1000 s: (226.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 800
Del.quantity cm³/ : 234.0...238.0
1000 s: (231.0...241.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm³ : 8.00
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 649 804

Injection pump
 Pump designation : PE10P120A320LS7809
 -11
 EP type number : 0 412 629 807
 Governor
 Governor design. : RQV300...1050PA797-6
 Governor no. : 0 421 813 705

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM443 A

1st version kW : 331.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-353

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.30...13.40

Del.quantity cm³/ : 18.7...19.0
 100 s: (18.4...19.3)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.5...6.8
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.20...1.40
2nd speed	rpm	: 600
	travel mm	: 4.90...5.20
3rd speed	rpm	: 800
	travel mm	: 5.80...6.20
4th speed	rpm	: 1025
	travel mm	: 8.50...9.00
5th speed	rpm	: 1175
	travel mm	: 9.50...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 900
Del.quantity : 187.0...190.0
1000 : (184.0...193.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 12.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 83...91

Testing:

Speed rpm : 200
Minimum rack trave: 8.60
Speed rpm : 300
Rack travel in mm : 6.50...6.80

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.30...13.40
2nd speed rpm : 750
Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.50...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 12.10...12.30

2nd pressure hPa : 550
Rack travel in m: 13.50...13.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 600
Del.quantity cm³/s : 198.0...202.0
1000 s: (195.0...205.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/s : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/s : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 649 805

Injection pump
 Pump designation : PE10P120A320LS7817
 : -10
 EP type number : 0 412 629 808
 Governor
 Governor design. : RQ300/1250PA856-1
 Governor no. : 0 421 801 449

Customer-spec. information
 Customer : DAIMLER-BENZ

 Engine : OM443 LA

 1st version kW : 400.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 130...150

 Test nozzle holder
 assembly : 1 688 901 019

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 067

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7-
 : 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 : 216-261-288-353

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.50...15.70

Del.quantity cm³/

100 s: (22.1...22.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 224.0...226.0

1000 : (221.0...229.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.40
Speed rpm : 1295...1310
2nd rack travel in: 4.00
Speed rpm : 1390...1420
4th rack travel in: 1500
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 390...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1250
Rack travel in m: 15.40...15.60
3rd speed rpm : 800
Rack travel in m: 16.10...16.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 16.10...16.30

Measurement
Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 13.20...13.40
2nd pressure hPa : 750
Rack travel in m: 15.20...15.40
3rd pressure hPa : 1250
Rack travel in m: 16.20...16.40 *
4th pressure hPa : 1500
Rack travel in m: 16.60...16.80
5th pressure hPa : -
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1250
Del.quantity cm3/ : 222.0...226.0
1000 s: (219.0...229.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 235.0...239.0
1000 s: (232.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 129.0...131.0
1000 s: (126.0...134.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.40
Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 649 808

Injection pump
 Pump designation : PE10P120A320LS7809
 -11
 EP type number : 0 412 629 807
 Governor
 Governor design. : RQ300/1050PA762-6
 Governor no. : 0 421 801 471

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM443 A
 1st version kW : 331.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 130...150

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.30...13.40

Del.quantity cm³/ : 18.5...18.7

100 s: (18.2...19.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del.quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.30
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.1

Testing:

Speed rpm : 200
Minimum rack trave: 9.20
Speed rpm : 300
Rack travel in mm : 6.80...7.40
Rack travel in mm : 2.00
Speed rpm : 395...435

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.30...13.40
2nd speed rpm : 750
Rack travel in m: 14.70...15.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.30...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.90...12.10
2nd pressure hPa : 550
Rack travel in m: 13.40...13.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750

Del.quantity cm³/ 1000 s: 202.0...205.0
Spread cm³ : 8.00
1000 s: (199.0...208.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 129.0...131.0
Spread cm³ : 8.00
1000 s: (126.0...134.0)
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g11
 Edition : 31.07.92
 Replaces : 05.91
 Test oil : ISO-4113

Combination no. : 0 402 678 815

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RSV650...1200POA826
 -1
 Governor no. : 0 421 833 357

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442A

1st version kW : 245.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 4.0...4.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 170.0...172.0

1000 : (167.0...175.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 92...100

Testing:

1st rack travel in: 11.20
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1249...1267
4th rack travel in: 1500
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 4.3

Testing:

Speed rpm : 100
Minimum rack trav: 19.50
Speed rpm : 650
Rack travel in mm : 4.00...4.60
Rack travel in mm : 2.00
Speed rpm : 660...720

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 12.20...12.30
2nd speed rpm : 1000
Rack travel in m: 12.40...12.60
3rd speed rpm : 900
Rack travel in m: 12.80...13.00
4th speed rpm : 600
Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm³/ : 184.0...187.0
1000 s: (181.0...190.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 600
Del.quantity cm³/ : 195.0...199.0
1000 s: (192.0...202.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 803
 Injection pump
 Pump designation : PES6P110A120RS7187
 EP type number : 0 412 716 801
 Governor
 Governor design. : RQV350...1100PA924
 Governor no. : 0 421 815 228
 Customer-spec. information
 Customer : CDC
 Engine : 6CTA
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 047
 Overflow quantity min. 1/h: 160...170
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 17...19

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 1100
 Rack travel in mm : 10.40...10.50
 Del.quantity cm³/ : 13.7...13.9
 100 s: (13.4...14.2)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 350.0
 Rack travel in mm : 4.6...4.8
 Del.quantity cm³/ : 3.0...3.6
 100 s: (2.8...3.8)
 Spread cm³ : 0.8
 100 s: (1.2)
(B) Setting of injection pump with governor
GUIDE SLEEVE TRAVEL
 1st speed rpm : 350
 travel mm : 1.10...1.50
 2nd speed rpm : 550
 travel mm : 3.70...4.30
 3rd speed rpm : 900
 travel mm : 6.90...7.50
 4th speed rpm : 1150
 travel mm : 9.70...9.90
 5th speed rpm : 1250
 travel mm : 11.00...11.40
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1230
 Rack travel in mm : 6.00...12.00
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1100
 Aneroid pressure h: 900

Del.quantity : 137.0...139.0
1000 : (134.0...142.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19
Speed rpm : 350
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 350...450

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.40...10.50
2nd speed rpm : 900
Rack travel in m: 10.10...10.30
3rd speed rpm : 650
Rack travel in m: 0.00...9.90

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 900
Rack travel mm : 10.40...10.50

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 6.70...7.10
2nd pressure hPa : 200
Rack travel in m: 7.40...7.50
3rd pressure hPa : 330
Rack travel in m: 8.40...8.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 86.0...90.0
1000 s: (84.0...92.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1140...1150

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ 1000 s: (28.0...38.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r
 Edition : 02.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 736 807

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1100PA964
 -1K
 Governor no. : 0 421 815 253

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 201.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.80...15.90

Del.quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure hPa : 1500
Del.quantity : 209.0...211.0
1000 : (206.0...214.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 64...72

Testing:

1st rack travel in: 14.50
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 15.80...15.90
2nd speed rpm : 650
Rack travel in m: 13.20...13.60
3rd speed rpm : 1100
Rack travel in m: 15.50...15.70

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 1500
Rack travel mm : 15.80...15.90

Measurement
Speed 1/min : 1050

1st pressure hPa : -
Rack travel in m: 8.10...8.50
2nd pressure hPa : 335

Rack travel in m: 10.10...10.20
3rd pressure hPa : 845
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ s: 190.5...196.5
1000 s: (187.5...199.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 91.0...95.0
1000 s: (89.0...97.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.50
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ s: 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3921771

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 1
 Edition : 02.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 736 814

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964
 -6K
 Governor no. : 0 421 815 258

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 187.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 1.80...2.00
2nd speed	rpm	: 450
	travel mm	: 3.10...3.50
3rd speed	rpm	: 700
	travel mm	: 5.90...6.30
4th speed	rpm	: 1200
	travel mm	: 9.00...9.20
5th speed	rpm	: 1400
	travel mm	: 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1200
Aneroid pressure h:	1200	
Del.quantity	: 183.0...185.0	
1000	: (180.0...188.0)	

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 13.50
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1405...1435
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version:
1st speed rpm : 1200
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 11.40...11.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 320
Rack travel in m: 9.60...9.70
3rd pressure hPa : 860
Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 165.5...171.5
1000 s: (162.5...174.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 86.5...90.5
1000 s: (84.5...92.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 10.70...11.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3921775

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 2
 Edition : 16.08.93
 Replaces : 12.92
 Test oil : ISO-4113

Combination no. : 0 402 736 816

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964
 -8K
 Governor no. : 0 421 815 264

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 213.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.70...14.80

Del.quantity cm³/ : 19.1...19.3

100 s: (18.8...19.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.3

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 700

travel mm : 5.90...6.30

4th speed rpm : 1200

travel mm : 9.00...9.20

5th speed rpm : 1400

travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 191.5...193.5

1000 : (188.5...196.5)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

```

1st rack travel in: 13.20
    Speed      rpm : 1245...1255
2nd rack travel in: 4.00
    Speed      rpm : 1400...1430
4th rack travel in: 1500
    Speed      rpm : 0.00...1.00

```

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
 Minimum rack travel: 7.20
 Speed rpm : 350
 Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

TORQUE CONTROL
 Dimension a mm : ?
 Torque control curve - 1st ver
 1st speed rpm : 1100
 Rack travel in m: 14.70...14
 2nd speed rpm : 650
 Rack travel in m: 12.60...13
 3rd speed rpm : 1200
 Rack travel in m: 14.20...14

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 14.70...14.80

Measurement Speed 1/min : 1100

1st pressure hPa : -
 Rack travel in m: 7.80...8.20
 2nd pressure hPa : 335
 Rack travel in m: 9.60...9.70
 3rd pressure hPa : 785
 Rack travel in m: 12.80...13.20

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 650
 Del.quantity cm³/ : 181.0...187.0
 1000 s: (178.0...190.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 90.0...94.0
 1000 s: (88.0...96.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ 1000 s: (135.0...175.0
 1000 s: (130.0...180.0)
 Rack travel in mm : 10.70...11.70

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 5.60...5.80
 Del.quantity cm³/ : 27.0...33.0
 1000 s: (25.0...35.0)
 Spread cm³ : 8.00
 1000 s: (12.00)

Remarks: : C.D.C. # 3916626

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 830

Injection pump
 Pump designation : PES6P110A120RS7263
 EP type number : 0 412 716 808
 Governor
 Governor design. : RQV350..1250PA964
 -11K
 Governor no. : 0 421 815 321

Customer-spec. information
 Customer : CUMMINS

Engine : 6BTAA
 1st version kW : 154.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 15.1...15.3

100 s: (14.8...15.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 4.9...5.2
 Del.quantity cm³/ : 2.3...2.9
 100 s: (2.1...3.1)
 Spread cm³ : 0.7
 100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1295
	travel mm	: 7.90...8.10
2nd speed	rpm	: 350
	travel mm	: 1.60...1.80
3rd speed	rpm	: 450
	travel mm	: 2.40...3.00
4th speed	rpm	: 900
	travel mm	: 4.60...5.20
5th speed	rpm	: 1600
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1440
 Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
 Aneroid pressure h: 1200

Del.quantity : 151.0...153.0
1000 : (148.0...156.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 13.50
Speed rpm : 1305...1315
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68...76

Testing:

Speed rpm : 250
Minimum rack trave: 6.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 310...440

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.80...13.90
2nd speed rpm : 750
Rack travel in m: 12.30...12.50
3rd speed rpm : 1250
Rack travel in m: 14.40...14.60
4th speed rpm : 400
Rack travel in m: 11.30...11.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 14.40...14.60

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 9.50...9.90
2nd pressure hPa : 775

Rack travel in m: 13.10...13.20
3rd pressure hPa : 570
Rack travel in m: 11.10...11.50

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ s: 151.0...157.0
1000 s: (148.0...160.0)
Spread cm³ : 3.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 123.0...125.0
1000 s: (120.0...128.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 135.0...175.0
1000 s: (131.0...179.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10

Remarks: : C.D.C. # 3281780
Start-of-delivery blocking 6,5° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.08.93
 Replaces : 04.93
 Test oil : ISO-4113

Combination no. : 0 402 736 835

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...900PA964-13
 K
 Governor no. : 0 421 815 324

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 6.3...6.5
 Del.quantity cm³/ : 2.0...2.6
 100 s: (1.8...2.8)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 1.60...1.80
2nd speed	rpm	: 450
	travel mm	: 3.00...3.40
3rd speed	rpm	: 600
	travel mm	: 5.20...5.60
4th speed	rpm	: 1000
	travel mm	: 8.40...8.60
5th speed	rpm	: 1150
	travel mm	: 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 900
Aneroid pressure h:	1200	
Del.quantity		: 240.5...242.5
1000		: (237.5...245.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 13.00
 Speed rpm : 1045...1075
 2nd rack travel in: 4.00
 Speed rpm : 1205...1215
 4th rack travel in: 1350
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 275
 Minimum rack travel: 8.10
 Speed rpm : 350
 Rack travel in mm : 6.30...6.50

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
 Torque control curve - 1st version
 1st speed rpm : 900
 Rack travel in m: 14.50...14.60
 2nd speed rpm : 650
 Rack travel in m: 13.40...13.80
 3rd speed rpm : 1000
 Rack travel in m: 14.00...14.20
 4th speed rpm : 750
 Rack travel in m: 13.70...14.10

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 14.00...14.20

Measurement Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.20...9.60
2nd pressure hPa : 325
Rack travel in m: 10.60...10.70
3rd pressure hPa : 765

Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 650
 Del.quantity cm³/ 1000 s: 218.0...224.0
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1200
 Speed rpm : 750
 Del.quantity cm³/ 1000 s: 223.5...229.5
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 1000
 Del.quantity cm³/ 1000 s: 94.5...98.5
 Spread cm³ : 8.00
 1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1045...1075

STARTING FUEL DELIVERY

Speed rpm : 100
 Del. quantity cm³/ 1000 s: (180.0...220.0
 Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
 Rack. travel in mm : 6.30...6.50
 Del.quantity cm³/ : 20.0...26.0
 1000 s: (18.0...28.0)
 Spread cm³ : 8.00
 1000 s: (12.00)

Remarks: : C.D.C. # 3922446

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 736 836

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...1000PA964
 -14K
 Governor no. : 0 421 815 325

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 6.3...6.5
 Del.quantity cm³/ : 2.0...2.6
 100 s: (1.8...2.8)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 1.80...2.00
2nd speed	rpm	: 450
	travel mm	: 3.10...3.50
3rd speed	rpm	: 600
	travel mm	: 5.10...5.50
4th speed	rpm	: 1000
	travel mm	: 8.10...8.30
5th speed	rpm	: 1200
	travel mm	: 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1000
Aneroid pressure h:		1200
Del.quantity		: 236.0...238.0
1000		: (233.0...241.0)

Sliding-sleeve position = 37.0 mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.08.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 837

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...1100PA964
 -15K
 Governor no. : 0 421 815 332

Customer-spec. information
 Customer : C.D.C.

Engine : OCTA-A

1st version kW : 186.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 085

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 2.0...2.6

100 s: (1.8...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 215.5...217.5

1000 : (212.5...220.5)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...126

Testing:

1st rack travel in: 12.40
Speed rpm : 1150...1180
2nd rack travel in: 4.00
Speed rpm : 1295...1305
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...74

Testing:

Speed rpm : 275
Minimum rack trave: 8.10
Speed rpm : 350
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.80...13.90
2nd speed rpm : 650
Rack travel in m: 13.10...13.50
3rd speed rpm : 1100
Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.20...9.60
2nd pressure hPa : 325
Rack travel in m: 10.60...10.70
3rd pressure hPa : 765
Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 205.0...211.0
 1000 s: (202.0...214.0)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 94.5...98.5
 1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1150...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...220.0
 1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 20.0...26.0
 1000 s: (18.0...28.0)
Spread cm³ : 8.00
 1000 s: (12.00)

Remarks: : C.D.C. # 3922449

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.07.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 842

Injection pump
 Pump designation : PES6P120A120RS7281
 EP type number : 0 412 726 890
 Governor
 Governor design. : RQV400...1250PA1060
 -1K
 Governor no. : 0 421 815 344

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 119.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.4

Del.quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 400
	travel mm	: 1.40...1.60
2nd speed	rpm	: 550
	travel mm	: 2.50...2.90
3rd speed	rpm	: 800
	travel mm	: 4.00...4.40
4th speed	rpm	: 1250
	travel mm	: 6.90...7.10
5th speed	rpm	: 1500
	travel mm	: 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1250
Aneroid pressure h:	1200	
Del.quantity	: 157.0...159.0	
1000	: (154.0...162.0)	

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:

1st rack travel in: 12.40
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1465...1495
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 275
Minimum rack trave: 7.80
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.40...13.50
2nd speed rpm : 800
Rack travel in m: 11.60...12.00
3rd speed rpm : 500
Rack travel m: 11.40...11.80
4th speed rpm : 900
Rack travel in m: 12.00...12.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 265
Rack travel in m: 11.10...11.20
3rd pressure hPa : 440

Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min : 250 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ 1000 s: 124.5...130.5
 1000 s: (121.5...133.5)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ 1000 s: 137.5...143.5
 1000 s: (134.5...146.5)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm³/ 1000 s: 108.5...112.5
 1000 s: (106.5...114.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...175.0
 1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 400
Rack travel in mm: 6.00...6.40
Del.quantity cm³/ 1000 s: 15.0...21.0
 1000 s: (13.0...23.0)
Spread cm³ : 4.00
 1000 s: (8.00)

Remarks: : C.D.C. # 3925085

Start-of-delivery blocking 5,75° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.08.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 843

Injection pump
 Pump designation : PES6P120A120RS7281
 EP type number : 0 412 726 890
 Governor
 Governor design. : RQV400...1250PA1060K
 Governor no. : 0 421 815 343

Customer-spec. information

Customer : C.D.C.

Engine : 68TA-A

1st version kW : 130.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 16.8...17.0

100 s: (16.5...17.3)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400.0

Rack travel in mm : 6.3...6.7

Del.quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 2.50...2.90

3rd speed rpm : 800

travel mm : 4.00...4.40

4th speed rpm : 1250

travel mm : 6.90...7.10

5th speed rpm : 1500

travel mm : 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del.quantity : 168.5...170.5

1000 : (165.5...173.5)

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:

1st rack travel in: 12.80
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1465...1495
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 300
Minimum rack trave: 7.80
Speed rpm : 400
Rack travel in mm : 6.30...6.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.80...13.90
2nd speed rpm : 800
Rack travel in m: 12.10...12.30
3rd speed rpm : 500
Rack travel in m: 11.50...12.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.40...10.80
2nd pressure hPa : 260
Rack travel in m: 11.30...11.40
3rd pressure hPa : 430
Rack travel in m: 13.00...13.40

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ 1000 s: 137.0...143.0
 1000 s: (134.0...145.0)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm³/ 1000 s: 110.0...114.0
 1000 s: (108.0...116.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...175.0
 1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.30...6.70
Del.quantity cm³/ 1000 s: 15.0...21.0
 1000 s: (13.0...23.0)
Spread cm³ : 4.00
 1000 s: (8.00)

Remarks:

: C.D.C. # 3925086
Start-of-delivery blocking 5,75° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.07.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 844

Injection pump
 Pump designation : PES6P120A120RS7287
 EP type number : 0 412 726 896
 Governor
 Governor design. : RQV400...1250PA964
 -21K
 Governor no. : 0 421 815 354

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTAA-A

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 036

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400.0

Rack travel in mm : 6.1...6.5

Del.quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 400
	travel mm	: 1.40...1.60
2nd speed	rpm	: 550
	travel mm	: 3.10...3.50
3rd speed	rpm	: 800
	travel mm	: 4.30...4.70
4th speed	rpm	: 1250
	travel mm	: 7.00...7.20
5th speed	rpm	: 1500
	travel mm	: 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1150
Aneroid pressure h:		1200
Del.quantity		: 199.0...201.0
1000		: (196.0...204.0)

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 13.50
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 300
Minimum rack trave: 7.80
Speed rpm : 400
Rack travel in mm : 6.10...6.50

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 15.00...15.10
2nd speed rpm : 900
Rack travel in m: 14.30...14.50
3rd speed rpm : 600
Rack travel in m: 13.20...13.60
4th speed rpm : 1250
Rack travel in m: 14.50...14.70

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 10.10...10.50
2nd pressure hPa : 355
Rack travel in m: 11.30...11.40
3rd pressure hPa : 645

Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ 1000 s: 183.0...189.0
1000 s: (180.0...192.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1150
Del.quantity cm³/ 1000 s: 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.10...6.50
Del.quantity cm³/ 1000 s: 15.0...21.0
1000 s: (13.0...23.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921925

Mark position of port-opening mark
6.25° before port opening cylinder 1
on clutch

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 16.08.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 845

Injection pump
 Pump designation : FES6P120A120RS7286
 EP type number : 0 412 726 894
 Governor
 Governor design. : RQV350...1100PA964
 -20K
 Governor no. : 0 421 815 352

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 224.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 95...115

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 15.00...15.10

Del.quantity cm³/

100 s: (24.6...25.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.8

Del.quantity cm³/

100 s: (1.6...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40

2nd speed rpm : 450

travel mm : 3.20...3.60

3rd speed rpm : 900

travel mm : 5.60...6.00

4th speed rpm : 1200

travel mm : 8.10...8.30

5th speed rpm : 1400

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 249.0...251.0

1000 : (246.0...254.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 13.30
Speed rpm : 1240...1270
2nd rack travel in: 4.00
Speed rpm : 1395...1405
4th rack travel in: 1475
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 275
Minimum rack trave: 7.70
Speed rpm : 350
Rack travel in mm : 6.40...6.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 15.00...15.10
2nd speed rpm : 650
Rack travel in m: 13.30...13.70
3rd speed rpm : 1200
Rack travel in m: 14.30...14.50
4th speed rpm : 750
Rack travel in m: 13.60...14.00

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 9.20...9.60
2nd pressure hPa : 345
Rack travel in m: 10.80...10.90
3rd pressure hPa : 725

Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ 1000 s: 210.5...216.5
 1000 s: (207.5...219.5)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ 1000 s: 90.5...94.5
 1000 s: (88.5...96.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1240...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 180.0...220.0
 1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.80
Del.quantity cm³/ 1000 s: 18.0...24.0
 1000 s: (16.0...26.0)
Spread cm³ : 8.00
 1000 s: (12.00)

Remarks: : C.D.C. # 3922425

Start-of-delivery blocking 6,5° after
start of delivery of cylinder no. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 800

Injection pump
 Pump designation : PESSP120A720LS7101
 -10
 EP type number : 0 412 725 811
 Governor
 Governor design. : RQ300/1050PA690
 Governor no. : 0 421 801 234

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM429 LA

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.50
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.80
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 12.00...12.30

Measurement
Speed 1/min : 500

1st pressure hPa : 240
Rack travel in m: 12.30...12.40
2nd pressure hPa : 350
Rack travel in m: 13.30...13.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 197.0...201.0
1000 s: (194.0...204.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm³/ : 204.0...208.0
1000 s: (201.0...211.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 157.0...159.0
1000 s: (154.0...162.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full! load rack tr: 12.80
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (156.0...184.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 745 803

Injection pump
 Pump designation : PES5P120A720LS7152
 -10
 EP type number : 0 412 725 812
 Governor
 Governor design. : RQ300/1050PA690-2
 Governor no. : 0 421 801 427

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM429 LA

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.70...13.80

Del.quantity cm³/

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.6

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h:

800 : 209.0...211.0

Del.quantity 1000 : (206.0...214.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 200
Minimum rack trave: 8.30
Speed rpm : 300
Rack travel in mm : 6.30...6.60
Rack travel in mm : 2.00
Speed rpm : 365...405

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.50

Measurement
Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 11.40...11.50
2nd pressure hPa : 500
Rack travel in m: 12.70...12.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 600
Del.quantity cm3/ : 204.0...210.0
1000 s: (201.0...213.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 135.0...137.0
1000 s: (132.0...140.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 805

Injection pump
 Pump designation : PES5P120A720LS7160
 -10
 EP type number : 0 412 725 813
 Governor
 Governor design. : RQ300/1050PA774-2
 Governor no. : 0 421 801 450

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM449 A
 1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.30

Del.quantity cm³/

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.3

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 650

Del.quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 200
Minimum rack trave: 7.90
Speed rpm : 300
Rack travel in mm : 5.70...6.30
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.80
2nd speed rpm : 750
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.10...13.30

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 11.20...11.40
2nd pressure hPa : 400
Rack travel in m: 12.50...12.70
3rd pressure hPa : 750
Rack travel in m: 13.20...13.30 *
4th pressure hPa : 850
Rack travel in m: 13.60...13.80
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 208.0...211.0
1000 s: (205.0...214.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 150.0...152.0
1000 s: (147.0...155.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 806

Injection pump
 Pump designation : PES5P120A720LS/163
 -10

EP type number : 0 412 725 814

Governor

Governor design. : RQ300/1050PA774-4

Governor no. : 0 421 801 453

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM449 LA

1st version kW : 221.0

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

- : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 235.0...237.0

1000 : (232.0...240.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.60...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1125
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm³/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm³/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 807

Injection pump
 Pump designation : PE55P120A720LS7174-1
 EP type number : 0 412 725 815
 Governor
 Governor design. : RQ300/1050PA774-2
 Governor no. : 0 421 801 450

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM449 A

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...7.0

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 650

Del.quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.40
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trav: 8.70
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.40...14.60
2nd speed rpm : 750
Rack travel in m: 14.90...15.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 12.20...12.40
2nd pressure hPa : 400
Rack travel in m: 13.50...13.70
3rd pressure hPa : 750
Rack travel in m: 14.20...14.30 *
4th pressure hPa : 850
Rack travel in m: 14.60...14.80
5th pressure hPa : -
Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 208.0...211.0
1000 s: (205.0...214.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ 1000 s: 216.0...220.0
1000 s: (213.0...223.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 150.0...152.0
1000 s: (147.0...155.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PLMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 808

Injection pump
 Pump designation : PES5P120A720LS7175
 -10
 EP type number : 0 412 725 816
 Governor
 Governor design. : RQ300/1050PA774-4
 Governer no. : 0 421 801 453

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM449 LA

1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 235.0...237.0

1000 : (232.0...240.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mr.: 5.60...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1125
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm3/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm3/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 809

Injection pump
 Pump designation : PE55P120A720LS7160
 -10
 EP type number : 0 412 725 813
 Governor
 Governor design. : RQV300...1050PA940
 Governor no. : 0 421 813 824

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 A
 1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...7.1

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.30

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 800

travel mm : 5.80...6.10

4th speed rpm : 1100

travel mm : 8.20...8.60

5th speed rpm : 1175

travel mm : 9.50...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 650
 Del.quantity : 196.0...198.0
 1000 : (193.0...201.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 117...125

Testing:
 1st rack travel in: 13.60
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1165...1195
 4th rack travel in: 1250
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 80...38

Testing:
 Speed rpm : 200
 Minimum rack trave: 8.80
 Speed rpm : 300
 Rack travel in mm : 6.50...7.10

CONSTANT REGULATION
 Speed rpm : 300...400

TORQUE CONTROL
 Dimension a mm : 0.40
 Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 14.50...14.70
 2nd speed rpm : 750
 Rack travel in m: 14.90...15.10
 3rd speed rpm : 900
 Rack travel in m: 14.70...14.90

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 650
 Rack travel mm : 13.10...13.30

Measurement
 Speed 1/min : 600

1st pressure hPa : 250

Rack travel in m: 11.20...11.40
 2nd pressure hPa : 400
 Rack travel in m: 12.50...12.70
 3rd pressure hPa : 750
 Rack travel in m: 13.20...13.30 *
 4th pressure hPa : 850
 Rack travel in m: 14.10...14.30
 5th pressure hPa : -
 Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm³/ : 208.0...211.0
 1000 s: (205.0...214.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1200
 Speed rpm : 750
 Del.quantity cm³/ : 216.0...220.0
 1000 s: (213.0...223.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 150.0...152.0
 1000 s: (147.0...155.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.60
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:
 :

* Increase in control-rod travel with
 respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 402 745 810

 Injection pump
 Pump designation : PE55P120A720LS7163
 -10
 EP type number : 0 412 725 814
 Governor
 Governor design. : RQV300...1050PA940-1
 Governor no. : 0 421 813 825

 Customer-spec. information
 Customer : DAIMLER-BENZ

 Engine : OM449 LA

 1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 019

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 067

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...5.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.10...1.30
2nd speed	rpm	: 600
	travel mm	: 4.90...5.10
3rd speed	rpm	: 800
	travel mm	: 5.80...6.10
4th speed	rpm	: 1100
	travel mm	: 8.20...8.60
5th speed	rpm	: 1175
	travel mm	: 9.50...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure hPa : 800
 Del.quantity : 235.0...237.0
 1000 : (232.0...240.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 116...124

Testing:
 1st rack travel in: 12.00
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1150...1180
 4th rack travel in: 1250
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 80...88

Testing:
 Speed rpm : 200
 Minimum rack trave: 8.00
 Speed rpm : 300
 Rack travel in mm : 5.60...5.90

CONSTANT REGULATION
 Speed rpm : 300...400

TORQUE CONTROL
 Dimension a mm : 1.30
 Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 13.00...13.20
 2nd speed rpm : 750
 Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 800
 Rack travel mm : 13.60...13.80

Measurement
 Speed 1/min : 600

1st pressure hPa : 200
 Rack travel in m: 11.00...11.20
 2nd pressure hPa : 450

Rack travel in m: 13.00...13.20
 3rd pressure hPa : 1000
 Rack travel in m: 13.70...13.80 *
 4th pressure hPa : 1125
 Rack travel in m: 14.10...14.30
 5th pressure hPa : -
 Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1400
 Speed rpm : 1050
 Del.quantity cm³/s : 228.0...231.0
 1000 s: (225.0...234.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1400
 Speed rpm : 750
 Del.quantity cm³/s : 250.0...254.0
 1000 s: (247.0...257.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/s : 146.0...148.0
 1000 s: (143.0...151.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 12.00
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/s : 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:
 :

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 804

Injection pump
 Pump designation : PES6P120A720LS7107
 -10
 EP type number : 0 412 726 864
 Governor
 Governor design. : RQ300/1100PA757
 Governor no. : 0 421 801 294

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM427ha
 1st version kW : 206.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...110

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 750

Del.quantity : 197.0...199.0

1000 : (194.0...202.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.70...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : 230
Rack travel in m: 11.00...11.20
2nd pressure hPa : 370
Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600
Del.quantity cm3/ : 195.0...198.0
1000 s: (192.0...201.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)

Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 805

Injection pump
 Pump designation : PES6P120A720LS7114
 -10

EP type number : 0 412 726 865

Governor

Governor design. : RQ300/900PA775

Governor no. : 0 421 801 319

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 300.0

Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...110

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.40...12.60

Del.quantity cm³/

100 s: (21.7...22.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 750

Del.quantity : 220.0...222.0

1000 : (217.0...225.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20

Speed rpm : 945...960

2nd rack travel in: 4.00

Speed rpm : 990...1020

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.1

Testing:

Speed rpm : 100

Minimum rack trave: 6.70

Speed rpm : 300

Rack travel in mm : 5.00...5.20

Rack travel in mm : 2.00

Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 11.20...11.40

2nd speed rpm : 750

Rack travel in m: 12.40...12.60

3rd speed rpm : 850

Rack travel in m: 11.80...11.90

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : -

Rack travel mm : 9.40...9.60

Measurement

Speed 1/min : 500

1st pressure hPa : 350

Rack travel in m: 9.90...10.10

2nd pressure hPa : 550

Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750

Speed rpm : 900
Del.quantity cm³/ 1000 s: 197.0...203.0
Spread cm³ : 8.00
1000 s: (194.0...206.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 142.0...149.0
Spread cm³ : 8.00
1000 s: (139.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 945...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 808

Injection pump
 Pump designation : PES6P120A720LS7107
 -10
 EP type number : 0 412 726 864
 Governor
 Governor design. : RQ300/1100PA805
 Governor no. : 0 421 801 352

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM471ha
 1st version kW : 206.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 750

Del.quantity : 197.0...199.0

1000 : (194.0...202.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.40...11.70

Measurement

Speed 1/min : 500

1st pressure hPa : 230
Rack travel in m: 11.70...11.90
2nd pressure hPa : 370
Rack travel in m: 13.10...13.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600
Del.quantity cm3/ : 193.0...196.0
1000 s: (190.0...199.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 149.0...151.0
1000 s: (146.0...154.0)

Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 841

Injection pump
 Pump designation : PES6P120A720LS7114
 -12

EP type number : 0 412 726 866

Governor

Governor design. : RQ300/1050PA774-3

Governor no. : 0 421 801 451

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 265.0

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm³/

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.20
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.20...14.40
3rd speed rpm : 700
Rack travel in m: 14.70...14.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 500
Rack travel in m: 13.40...13.60
3rd pressure hPa : 1100
Rack travel in m: 14.20...14.40
4th pressure hPa : 1200
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm³/ 1000 s: 234.0...238.0
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 700
Del.quantity cm³/ 1000 s: 246.0...249.0
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 146.0...148.0
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 843

Injection pump
 Pump designation : PES6P120A720LS7161
 -10

EP type number : 0 412 726 868

Governor

Governor design. : RQ300/1050PA897

Governor no. : 0 421 801 452

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM447 A

1st version kW : 213.0

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.6

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 680

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.50
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mr. : 6.00...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.50...13.70
2nd speed rpm : 750
Rack travel in m: 14.80...15.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.40...12.60
2nd pressure hPa : 400
Rack travel in m: 13.10...13.30
3rd pressure hPa : 800
Rack travel in m: 14.20...14.30
4th pressure hPa : -
Rack travel in m: 11.30...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ 1000 s: 193.0...195.0
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ 1000 s: 218.0...222.0
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ 1000 s: 144.0...146.0
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ 1000 s: 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 854

Injection pump
 Pump designation : PES6P120A720LS7114
 -13
 EP type number : 0 412 726 867
 Governor
 Governor design. : RQ300/1050PA911
 Governor no. : 0 421 801 476

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 257.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

Speed rpm : 300

Rack travel in mm : 5.80...6.20

Rack travel in mm : 2.00

Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40

2nd speed rpm : 1050

Rack travel in m: 13.60...13.80

3rd speed rpm : 700

Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 800

Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300

Rack travel in m: 11.20...11.40

2nd pressure hPa : 600

Rack travel in m: 13.10...13.30

3rd pressure hPa : 1000

Rack travel in m: 13.70...13.80 *

4th pressure hPa : 1100

Rack travel in m: 13.90...14.10

5th pressure hPa : -

Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 1050

Del.quantity cm³/ : 229.0...233.0

1000 s: (226.0...236.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1500

Speed rpm : 800

Del.quantity cm³/ : 244.0...247.0

1000 s: (241.0...250.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 146.0...148.0

1000 s: (143.0...151.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 855

Injection pump
 Pump designation : PES6P120A720LS7176
 -10
 EP type number : 0 412 726 869
 Governor
 Governor design. : RQ300/1050PA897
 Governer no. : 0 421 801 452

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM447 A

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

EASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.4
 Del.quantity cm³/

100 s: (1.1...2.3)

Spread cm³ : 0.6

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 680

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.50
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 6.00...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.50...13.70
2nd speed rpm : 750
Rack travel in m: 14.70...14.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.40...12.60
2nd pressure hPa : 400
Rack travel in m: 13.10...13.30
3rd pressure hPa : 800
Rack travel in m: 14.20...14.30 *
4th pressure hPa : -
Rack travel in m: 11.30...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 193.0...195.0
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ 1000 s: 218.0...222.0
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 144.0...146.0
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 858

Injection pump
 Pump designation : PES6P120A720LS7181
 -10
 EP type number : 0 412 726 870
 Governor
 Governor design. : RQ300/1050PA911-1
 Governor no. : 0 421 801 481

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 294.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del.quantity cm³/ : 27.4...27.6

100 s: (27.1...27.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 274.0...276.0

1000 : (271.0...279.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 850
Rack travel in m: 15.60...15.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.90...11.10
2nd pressure hPa : 700
Rack travel in m: 14.00...14.20
3rd pressure hPa : 1300
Rack travel in m: 15.40...15.60
4th pressure hPa : 1450
Rack travel in m: 15.90...16.10
5th pressure hPa : -
Rack travel in m: 10.00...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050

Del.quantity cm³/ s: 269.0...272.0
1000 s: (266.0...275.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 700
Del.quantity cm³/ s: 293.0...301.0
1000 s: (295.0...304.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 143.0...145.0
1000 s: (140.0...148.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 860

Injection pump
 Pump designation : FES6P120A720LS7161
 -10
 EP type number : 0 412 726 868
 Governor
 Governor design. : RQV300...1050PA940-3
 Governor no. : 0 421 813 827

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM47 A

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.7

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.6

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
	travel mm	: 1.10...1.30
2nd speed	rpm	: 600
	travel mm	: 4.90...5.10
3rd speed	rpm	: 800
	travel mm	: 5.90...6.20
4th speed	rpm	: 1100
	travel mm	: 8.10...8.50
5th speed	rpm	: 1175
	travel mm	: 9.70...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1085

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 681
Del.quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 1085
Rack travel in mm : 16.5

Testing:
1st rack travel in: 12.50
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 82...90

Testing:
Speed rpm : 200
Minimum rack trave: 8.60
Speed rpm : 300
Rack travel in mm : 6.30...6.70

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 1.20
2nd speed rpm : 1050
Rack travel in m: 13.50...13.70
3rd speed rpm : 750
Rack travel in m: 14.70...14.90

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.10...14.30

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.40...12.60

2nd pressure hPa : 400
Rack travel in m: 13.10...13.30
3rd pressure hPa : 800
Rack travel in m: 14.20...14.30 *
4th pressure hPa : -
Rack travel in m: 11.30...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/s : 193.0...195.0
1000 s: (190.0...198.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/s : 218.0...222.0
1000 s: (215.0...225.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/s : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/s : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 881

Injection pump
 Pump designation : PES6P120A720LS7195
 -10
 EP type number : 0 412 726 871
 Governor
 Governor design. : RQ300/1100PA805-1
 Governor no. : 0 421 801 505

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447hA
 1st version kW : 206.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 750

Del.quantity : 197.0...199.0

1000 : (194.0...202.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mr.: 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.80...9.00

Measurement

Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 8.90...9.20
2nd pressure hPa : 500
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600
Del.quantity cm3/ : 192.0...195.0
1000 s: (188.0...198.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 129.0...131.0
1000 s: (126.0...134.0)

Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 21.09.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 913

Injection pump
 Pump designation : PES6P120A720LS7237-1
 EP type number : 0 412 726 872
 Governor
 Governor design. : RQ300/1100PA10G8-1
 Governor no. : 0 421 801 592

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 HA

1st version kW : 184.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.00...12.20

Del.quantity cm³/ : 16.1...16.3

100 s: (15.8...16.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...7.1

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 500

Del.quantity : 161.0...163.0

1000 : (158.0...166.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.20
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack trave: 8.30
Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm: 2.00
Speed rpm : 370...410

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 500
Rack travel mm : 12.00...12.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.70...11.90
2nd pressure hPa : 700
Rack travel in m: 12.10...12.30 *
3rd pressure hPa : 1100
Rack travel in m: 12.80...13.00
4th pressure hPa : -
Rack travel in m: 11.70...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1100
Del.quantity cm³/ : 193.0...196.0
1000 s: (190.0...199.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 800
Del.quantity cm³/ : 195.0...199.0
1000 s: (192.0...202.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 60.0...80.0
1000 s: (56.0...84.0)
Rack travel in mm : 11.70...12.10

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 916

Injection pump
 Pump designation : PES6P120A720LS7237
 -10
 EP type number : 0 412 726 872
 Governor
 Governor design. : RQ300/1100PA1010
 Governor no. : 0 421 801 596

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 hA

1st version kW : 184.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.00...12.20

Del.quantity cm³/ : 16.1...16.3

100 s: (15.8...16.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.4

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 500

Del.quantity : 161.0...163.0

1000 : (158.0...166.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.20

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1220...1250

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.1

Testing:

Speed rpm : 200

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm: 5.80...6.40

Rack travel in mm: 2.00

Speed rpm : 390...430

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 500

Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300

Rack travel in m: 11.70...11.90

2nd pressure hPa : 700

Rack travel in m: 12.10...12.30 *

3rd pressure hPa : 1100

Rack travel in m: 12.80...13.00

4th pressure hPa : -

Rack travel in m: 11.70...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 1100

Del.quantity cm³/ : 193.0...196.0

1000 s: (190.0...199.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1400

Speed rpm : 800
Del.quantity cm³/ : 195.0...199.0
1000 s: (192.0...202.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)

Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (205.0...234.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 21.08.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 917

Injection pump
 Pump designation : PES6P120A720LS7238
 -10
 EP type number : 0 412 726 873
 Governor
 Governor design. : RQ300/1100PA1010-1
 Governor no. : 0 421 801 597

Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM447 hLA
 1st version kW : 220.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.70...13.90

Del.quantity cm³/

100 s: (20.2...21.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h:

Del.quantity : 205.0...207.0

1000 : (202.0...210.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.30
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 6.00...6.60
Rack travel in mm : 2.00
Speed rpm : 370...410

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 600
Rack travel mm : 13.70...13.90

Measurement

Speed 1/min : 600

1st pressure hPa : 150
Rack travel in m: 11.50...11.70
2nd pressure hPa : 350
Rack travel in m: 13.00...13.20
3rd pressure hPa : 800
Rack travel in m: 13.80...14.00 *
4th pressure hPa : 950
Rack travel in m: 14.20...14.40
5th pressure hPa : -
Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1100
Del.quantity cm³/ : 221.0...224.0
1000 s: (218.0...227.0)

Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 140.0...142.0
1000 s: (137.0...145.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 913

Injection pump
 Pump designation : PES6P120A720LS7238
 -10
 EP type number : 0 412 726 873
 Governor
 Governor design. : RQ300/1100PA1013
 Governor no. : 0 421 801 599

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 hLA
 1st version kW : 220.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.6

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 600

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.60
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 6.00...6.60
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 600
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 12.20...12.40
2nd pressure hPa : 400
Rack travel in m: 13.60...13.80
3rd pressure hPa : 800
Rack travel in m: 14.20...14.40
4th pressure hPa : -
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1100
Del.quantity cm³/ : 229.0...232.0
1000 s: (226.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400

Speed rpm : 700
Del.quantity cm³/ : 233.0...237.0
1000 s: (230.0...240.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 148.0...150.0
1000 s: (145.0...153.0)
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 919

Injection pump
 Pump designation : PES6P120A720LS7237
 -10
 EP type number : 0 412 726 872
 Governor
 Governor design. : RQ300/1100PA1013-1
 Governer no. : 0 421 801 603

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 HA
 1st version kW : 184.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.00...12.20

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 550

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.30
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 5.60...6.20
Rack travel in mm : 2.00
Speed rpm : 370...410

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 550
Rack travel mm : 12.00...12.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.60...11.80
2nd pressure hPa : 800
Rack travel in m: 12.20...12.40
3rd pressure hPa : 1100
Rack travel in m: 12.60...12.80
4th pressure hPa : -
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1700
Speed rpm : 1100
Del.quantity cm3/ : 199.0...202.0
1000 s: (196.0...205.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1700

Speed rpm : 800
Del.quantity cm3/ : 203.0...207.0
1000 s: (200.0...210.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 923

Injection pump
 Pump designation : PES6P120A720LS7237
 -10
 EP type number : 0 412 726 872
 Governor
 Governor design. : RQ300/1100PA1013-2
 Governor no. : 0 421 801 611

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 HA
 1st version kW : 184.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.00...12.20

Del.quantity cm³/ : 16.1...16.3

100 s: (15.8...16.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 500

Del.quantity : 161.0...163.0

1000 : (158.0...166.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.20
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm: 5.60...6.20
Rack travel in mm : 2.00
Speed rpm : 370...410

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 500
Rack travel mm : 12.00...12.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.70...11.90
2nd pressure hPa : 700
Rack travel in m: 12.10...12.30
3rd pressure hPa : 1100
Rack travel in m: 12.80...13.00
4th pressure hPa : -
Rack travel in m: 11.70...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1100
Del.quantity cm3/ : 193.0...196.0
1000 s: (190.0...199.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400

Speed rpm : 800
Del.quantity cm3/ : 195.0...199.0
1000 s: (192.0...202.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 16.08.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 945

Injection pump
 Pump designation : PES6P120A320LS7284
 EP type number : 0 412 726 891
 Governor
 Governor design. : RQV350...1100PA1063K
 Governor no. : 0 421 815 348

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 205.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 17.7...17.9
 100 s: (17.4...18.2)

Spread cm³ : 0.5
 100 s: (1.2)

2nd speed rpm : 325.0
 Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ : 2.8...3.4
 100 s: (2.6...3.6)
 Spread cm³ : 0.5
 100 s: (0.9)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 1.90...2.10
2nd speed	rpm	: 500
	travel mm	: 3.90...4.30
3rd speed	rpm	: 800
	travel mm	: 6.60...7.00
4th speed	rpm	: 1100
	travel mm	: 9.00...9.20
5th speed	rpm	: 1250
	travel mm	: 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1100
Aneroid pressure h:		1500
Del.quantity		: 177.5...179.5
1000		: (174.5...182.5)

Spread cm³ : 5.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 11.90
Speed rpm : 1150...1180
2nd rack travel in: 4.00
Speed rpm : 1275...1285
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 17...25

Testing:

Speed rpm : 275
Minimum rack trave: 7.50
Speed rpm : 325
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.90...13.00
2nd speed rpm : 650
Rack travel in m: 12.40...12.60
3rd speed rpm : 500
Rack travel in m: 11.30...11.70
4th speed rpm : 800
Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1100
Pressure hPa : 1500
Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 280
Rack travel in m: 10.30...10.40
3rd pressure hPa : 705

Rack travel in m: 11.90...12.30

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ : 181.0...187.0
1000 s: (178.0...190.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm³/ : 91.5...95.5
1000 s: (89.5...97.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1150...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 28.0...34.0
1000 s: (26.0...36.0)
Spread cm³ : 5.00
1000 s: (9.00)

Remarks:

: NAVISTAR #1820266C91
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm
Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 16.08.93
 Replaces : 04.93
 Test oil : ISO-4113

Combination no. : 0 402 746 946

Injection pump
 Pump designation : PES6P120A320LS7284
 EP type number : 0 412 726 891
 Governor
 Governor design. : RQV350...1100PA1066K
 Governor no. : 0 421 815 349

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 222.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.5

100 s: (1.2)

2nd speed rpm : 325.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 2.8...3.4

100 s: (2.6...3.6)

Spread cm³ : 0.5

100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.90...2.10

2nd speed rpm : 500
 travel mm : 3.90...4.30

3rd speed rpm : 800
 travel mm : 6.60...7.00

4th speed rpm : 1100
 travel mm : 9.00...9.20

5th speed rpm : 1250
 travel mm : 10.60...11.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100

Aneroid pressure h: 1500
Del.quantity : 199.5...201.5
1000 : (196.5...204.5)
Spread cm³ : 5.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 12.80
Speed rpm : 1140...1170
2nd rack travel in: 4.00
Speed rpm : 1275...1285
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 15...23

Testing:

Speed rpm : 275
Minimum rack trave: 7.50
Speed rpm : 325
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.80...13.90
2nd speed rpm : 650
Rack travel in m: 13.00...13.20
3rd speed rpm : 500
Rack travel in m: 12.20...12.60
4th speed rpm : 800
Rack travel in m: 13.30...13.50

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1500
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 9.70...10.10

2nd pressure hPa : 330
Rack travel in m: 10.60...10.70
3rd pressure hPa : 840
Rack travel in m: 12.40...12.70

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ : 198.5...204.5
1000 s: (195.5...207.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm³/ : 91.5...95.5
1000 s: (89.5...97.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1140...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 28.0...34.0
1000 s: (26.0...36.0)
Spread cm³ : 5.00
1000 s: (9.00)

Remarks: : NAVISTAR #1820267C91

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm
Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 n
 Edition : 02.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 776 808

Injection pump
 Pump designation : PES6P120A720RS7223
 EP type number : 0 412 726 843
 Governor
 Governor design. : RSV400...1050POA547
 Governer no. : 0 421 833 349

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 HZ010

1st version kW : 241.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 075

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 2.2...2.8

100 s: (2.0...3.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 212.5...214.5

1000 : (209.5...217.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 6.00...6.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.70...12.80
2nd speed rpm : 850
Rack travel in m: 13.20...13.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.20...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 290
Rack travel in m: 11.30...11.40
3rd pressure hPa : 620
Rack travel in m: 12.50...12.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 850

Del.quantity cm³/ 1000 s: 222.0...228.0
1000 s: (219.0...231.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 137.5...141.5
1000 s: (135.5...143.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ 1000 s: 22.5...28.5
1000 s: (20.5...30.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Adjustment without torque-control E47014
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 16.08.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 776 809

Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV475...1000POA551
 Governer no. : 0 421 833 360

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AT010

1st version kW : 221.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 21.8...22.0

100 s: (21.5...22.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 475.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 2.2...2.8

100 s: (2.0...3.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aeriod pressure h: 1200

Del.quantity : 218.0...220.0

1000 : (215.0...223.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 41...49

Testing:

1st rack travel in: 11.30
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1120...1130
3rd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 475
Rack travel in mm : 4.80...5.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 460
Rack travel in m: 10.60...10.70
3rd pressure hPa : 735
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 136.0...140.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 475
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 22.0...28.0
1000 s: (20.0...30.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE42303
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 02.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 776 811

Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...1050PCA547
 -2
 Governor no. : 0 421 833 409

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AF010

1st version kW : 242.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.50...12.60

Del.quantity cm³/

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/

100 s: (2.2...3.2)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 225.5...227.5

1000 : (222.5...230.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 41...49

Testing:

1st rack travel in: 11.50
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1150...1160
3rd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.50...12.60
2nd speed rpm : 750
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.90...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 620
Rack travel in m: 10.50...10.60
3rd pressure hPa : 1020
Rack travel in m: 11.90...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 750

Del.quantity cm³/ : 230.5...236.5
1000 s: (227.5...239.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 124.0...128.0
1000 s: (122.0...130.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 24.5...30.5
1000 s: (22.5...32.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46179
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 02.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 776 812

Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...1050PCA547
 -3
 Governor no. : 0 421 833 410

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AF010

1st version kW : 225.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 44...52

Testing:

1st rack travel in: 10.70
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1175
3rd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.70...11.80
2nd speed rpm : 750
Rack travel in m: 12.20...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 560
Rack travel in m: 10.40...10.50
3rd pressure hPa : 925
Rack travel in m: 11.60...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 750

Del.quantity cm³/ 1000 s: 213.0...219.0
1000 s: (210.0...222.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 35.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ 1000 s: 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE42225
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 02.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 776 815

Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...900P7A569
 Governer no. : 0 421 833 418

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AF010

1st version kW : 285.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.90...15.00

Del.quantity cm³/ : 30.9...31.1

100 s: (30.6...31.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850
 Del.quantity : 309.5...311.5

1000 : (306.5...314.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
 position degrees: 56...64

Testing:
1st rack travel in: 14.10
Speed rpm : 895...905
2nd rack travel in: 4.00
Speed rpm : 950...960
3rd rack travel in: 4.00
Speed rpm : 965...995
4th rack travel in: 1050
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 895...905

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 26.0...32.0
1000 s: (24.0...34.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: JOHN DEERE # RE42226

Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 02.07.93
 Replaces : 06.93
 Test oil : ISO-4113

Combination no. : 0 402 776 816

Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...10150P0A547
 Governor no. : 0 421 833 419

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 HF010

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.70...13.80

Del.quantity cm³/

100 s: (25.8...26.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/

100 s: (2.7...3.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 261.5...263.5

1000 : (258.5...266.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 40...48

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 12.50
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.70...13.80
2nd speed rpm : 850
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.90
2nd pressure hPa : 600
Rack travel in m: 10.90...11.00
3rd pressure hPa : 1060
Rack travel in m: 12.70...13.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 850

Del.quantity cm³/ 1000 s: 276.0...282.0
1000 s: (273.0...285.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 132.5...136.5
1000 s: (130.5...138.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ 1000 s: 29.0...35.0
1000 s: (27.0...37.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46178
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.09.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 031
Injection pump
 Pump designation : PES4MW100/720RS1513
 EP type number : 0 413 204 011
 Governor
 Governor design. : RQV300...1300MW125-3
 Governer no. : 0 420 083 260
Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM364LA
 1st version kW : 104.0
 Rated speed : 2600
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed	rpm	: 1300
Rack travel in mm		: 12.60...12.70
Del.quantity cm ³ /		: 11.8...12.0
	100 s:	(11.6...12.2)
Spread	cm ³	: 0.3
	100 s:	(0.6)
2nd speed	rpm	: 300.0
Rack travel in mm		: 4.2...4.4
Del.quantity cm ³ /		: 1.0...1.4
	100 s:	(0.7...1.6)
Spread	cm ³	: 0.3
	100 s:	(0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.15...1.65
2nd speed	rpm	: 413
travel mm		: 2.25...2.75
3rd speed	rpm	: 880
travel mm		: 4.75...5.25
4th speed	rpm	: 1354
travel mm		: 8.43...8.93

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del.quantity : 118.0...120.0
 1000 : (116.0...122.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:

1st rack travel in: 11.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 72...80

Testing:

Speed rpm : 200
Minimum rack trave: 6.00
Speed rpm : 300
Rack travel in mm : 4.20...4.40

Aneroid/Altitude
Compensator Test

1st version:

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.90...9.00

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 500
Rack travel in m: 11.90...12.10
3rd pressure hPa : 1000
Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 111.5...114.5
1000 s: (109.0...117.0)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 43.0...45.0
1000 s: (41.0...47.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 3,0 t2
 Edition : 08.09.93
 Replaces : 06.84
 Test oil : ISO-4113

Combination no. : 0 403 245 025

Injection pump
 Pump designation : PE55MW55/320RS16-1
 EP type number : 0 413 255 989
 Governor
 Governor design. : RW375/2200MW28-3
 Governor no. : 0 420 081 023

Customer-spec. information
 Customer : MERCEDES BENZ

Engine : 617 A - USA

1st version kW : 92.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 20...32

Prestroke mm : 2.10...2.20
 : (2.05...2.25)

Rack travel in mm : 19.50...22.50

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Tolerance + - : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.5...13.6

Del.quantity cm³/

100 s: (5.0...5.3)

Spread cm³ : 0.25

100 s: (0.30)

2nd speed rpm : 365

Rack travel in mm : 5.7...5.8

Del.quantity cm³/

100 s: (0.85...1.25)

Spread cm³ : 0.5

100 s: (1.5)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1733

Del.quantity : 51.5...52.5

1000 : (50.5...53.5)

Spread cm³ : 2.50

1000 : (3.00)

SENSING-LEVER SETTING

Speed 1/min : 375

Contr.-rod trav.mm: -0.1

RATED SPEED

1st version

Control lever

position degrees: 69...

2nd rack travel in: 0..1

Speed rpm : 2950

3rd rack travel in: 12.1...12.3

Speed rpm : 2180

4th rack travel in: 2300...2320

Speed rpm : 11.2

5th rack travel in: 2620...2720

Speed rpm : 4.00

LOW IDLE 1

Control lever
position degrees: 27...31
Setting point w/out bumper spring
Speed rpm : 365
Rack travel in mm : 5,7...5,8

Testing:
Speed rpm : 100
Minimum rack trave: 11.0
Speed rpm : 320
Maximum rack trave: 11.0

SET IDLE AUXILIARY SPRING
Speed rpm : -
Rack travel in mm : 520...550
: 1/MIN

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.5...13.6
2nd speed rpm : 1600
Rack travel in m: 13.1...13.3
3rd speed rpm : 2180
Rack travel in m: 12.1...12.3

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1400
Rack travel mm : 0.40...0.70

Measurement
Speed 1/min : 1000

1st pressure hPa : 1067
Rack travel in m: 2.50...2.90
2nd pressure hPa : 747
Rack travel in m: 4.70...5.20

START CUT-OUT

Speed 1/min : 260...310

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1733
Speed rpm : 1600
Del.quantity cm3/ : 51.5...53.0
1000 s: (50.5...54.0)
Spread cm3 : 2.50
1000 s: (3.00)
Aneroid pressure h: 1733
Speed rpm : 2180

Del.quantity cm3/ : 50.0...52.00
1000 s: (49.0...53.0)
Spread cm3 : 2.50
1000 s: (3.00)
Aneroid pressure h: 1067
Speed rpm : 1000
Del.quantity cm3/ : 41.0...43.0
1000 s: (40.0...44.0)
Spread cm3 : 2.50
1000 s: (3.00)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 55.0...
1000 s: (52.0...)
Rack travel in mm : 20.50...21.50

HIGH IDLE

1st version
Aneroid pressure h: 1733
Speed rpm : 2550
Del.quantity cm3/ : 24.0...30.0
1000 s: (23.0...31.0)
Spread cm3 : 2.50
1000 s: (3.00)

LOW IDLE

Speed rpm : 365
Rack travel in mm : 5.70...5.80
Del.quantity cm3/ : 10.0...11.0
1000 s: (8.50...12.5)
Spread cm3 : 0.50
1000 s: (1.50)

Remarks:

SETTING THE IDLE STAGE

-Text supersedes the corresponding section in the test instructions.
Control-lever position 69°.
Drive pump at n = 1000 1/min. Screw in spring retainer until control-rod travel 13.5...13.6 mm is obtained.

Control-lever position 49°.
Drive pump at n = 1000 1/min.
Control-rod travel 8.8...mm must be obtained.

Section 4.3 of test instructions changes as follows:
Drive injection pump at n = 800 1/min.

Set control lever so that control-rod travel 1.0...1.3 mm is obtained. Control lever must be within allowable tolerance. Bring idle stop up against control lever and fix.

1...2 Nm. Move control lever to full-load stop; voltage value of 2.503...2.523 V must be attained.

SETTING THE IDLE-SPEED AUXILIARY SPRING

-Set idle-speed auxiliary spring to contact up to $n = 520 \dots 550$ 1/min.

Start-of-delivery sensor system:
adjustment and blocking with device
 $KDEP 1077 = 19.3^\circ \dots 19.7^\circ$
($19.2 \dots 19.8^\circ$) angular displacement of cam following start of delivery of cylinder no. 1.

CHECKING OF SHUTOFF

-Drive pump at $n = 200$ 1/min.
-Overcome spring-loaded idle stop with control lever. Control-rod travel obtained may be max. 5 mm.

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.
With $n = 375$ 1/min. and $p_u = 450$ mbar, control rod must move quickly to control-rod travel = 0 mm

Control-lever range idle to full load $38 \dots 42^\circ$.

Testing and adjusting the control-rod-travel sensor with evaluation circuit

KDEP-P400

Receiving inspection

Shift control lever to full-load stop. Set 13.5 V at stabilizer. Apply 1733 hPa to ALDA. Run up to speed of 1000 1/min; a voltage of 2,503...2,523 V must be displayed on the digital voltmeter.

RWG adjustment

At engine speed of 1000 1/min set delivery rate of 27.5...28.5 ccm/1000 strokes with control lever. Shift RWG until $U = 1.755 \dots 1.775$ V is indicated. Tighten fastening screws to

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : M8
 Edition : 7.5.93
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 446 149

 Injection pump
 Pump designation : PES6MW100/720RS1114-
 1
 EP type number : 0 413 406 111
 Governor
 Governor design. : RQV300...1300MW55
 Governor no. : 0 420 083 076

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM366LA

 1st version kW : 177.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 0 681 343 009

 Opening
 pressure, bar : 172...175

 Test lines : 1 680 750 0008

 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

 Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 8.3...8.5

100 s: (8.1...8.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del.quantity cm³/ : 1.0...1.4

100 s: (0.9...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : ?

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 83.0...85.0

1000 : (81.0...87.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 10.40

Speed rpm : 1340...1350

2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1520
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:

Speed rpm : 100
Minimum rack trave: 8.70
Speed rpm : 300
Rack travel in mm : 7.80...7.90

TORQUE CONTROL

Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 12.40...12.50
3rd speed rpm : 800
Rack travel in m: 12.10...12.30
4th speed rpm : 900
Rack travel in m: 11.60...11.80

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm3/ : 84.0...86.0
1000 s: (82.0...86.0)
Spread cm3 : 5.00
1000 s: (7.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 7.80...7.90
Del.quantity cm3/ : 10.0...14.0
1000 s: (9.0...15.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:
: